XR-4140/4147/4150/4157

SERVICE MANUAL

US Model
Canadian Model

AEP Model
XR-4150

E Model
XR-4140/4150

Photo : XR-4147

Photo : XR-4150

Model Name Using Similar Mechanism	XR-4057
Tape Transport Mechanism Type	MG-36VJ-32

SPECIFICATIONS

Power amplifier section

Outputs: Speaker outputs (sure seal connectors)
Speaker impedance: 4 – 8 ohms
Maximum power output: 22 W + 22 W (at 4 ohms)*
*Measured at 14.4 V

Cassette player section

Tape track: 4-track 2-channel stereo
Frequency response: 30 – 15,000 Hz
Signal-to-noise ratio: 55 dB
Wow and flutter: 0.15% (WRMS)

Tuner section

FM

Tuning range: For the European model: 87.5 – 108 MHz
For other models: 87.9 – 107.9 MHz
Antenna terminal: External antenna connector
Intermediate frequency: 10.7 MHz
Usable sensitivity: 15 dBf (75 ohms)
Selectivity: 70 dB at 400 kHz
Signal-to-noise ratio: 66 dB (stereo), 69 dB (monaural)
Harmonic distortion at 1 kHz: 0.9% (stereo), 0.5% (monaural)
Separation: 35 dB at 1 kHz
Frequency response: 30 – 15,000 Hz
Capture ratio: 2 dB

AM

AM tuning interval: For the European model: 9 kHz
For other models: 9 kHz/10 kHz switchable
Tuning range: For the European model: 531 – 1,602 kHz (at 9 kHz step)
For other models: 531 – 1,602 kHz (at 9 kHz step)
530 – 1,620 kHz (at 10 kHz step)
Antenna terminal: External antenna connector
Intermediate frequency: 450 kHz
Sensitivity: 35μV

General

Output lead: Power antenna relay control lead
Tone controls: Bass: 0 to +10 dB at 100 Hz
Treble: ±8 dB at 10 kHz
Power requirements: 12 V DC car battery (negative ground)
Dimensions: Approx. 178 × 50 × 165 mm (w/h/d)
Mounting dimensions: Approx. 182 × 53 × 145 mm (w/h/d)
Weight: Approx. 1.4 kg
Accessories supplied: Mounting hardware (1 set)

Design and specifications subject to change without notice.

FM/AM CASSETTE CAR STEREO

SONY®

MICROFILM

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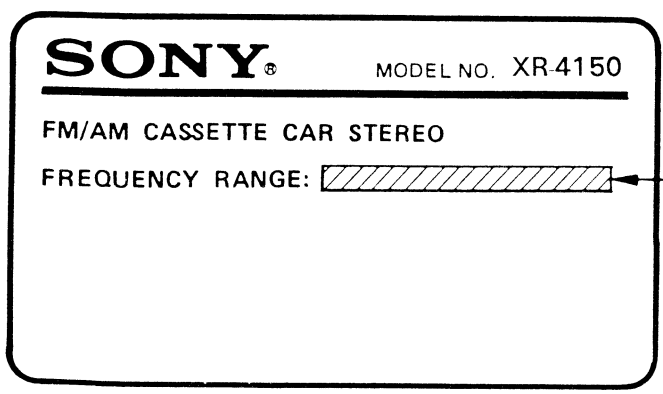
XR-4150 MODEL IDENTIFICATION

– Specification Label –



AEP model : FM 87.5 – 108MHz
AM 531 – 1,602kHz

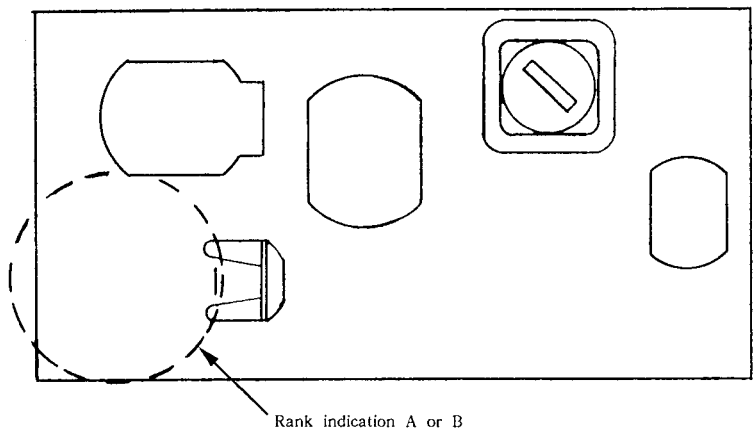
E model : FM 87.9 – 107.9MHz
AM 530 – 1,620kHz with 10kHz spacing
AM 531 – 1,602kHz with 9kHz spacing

※ Precautions for servicing

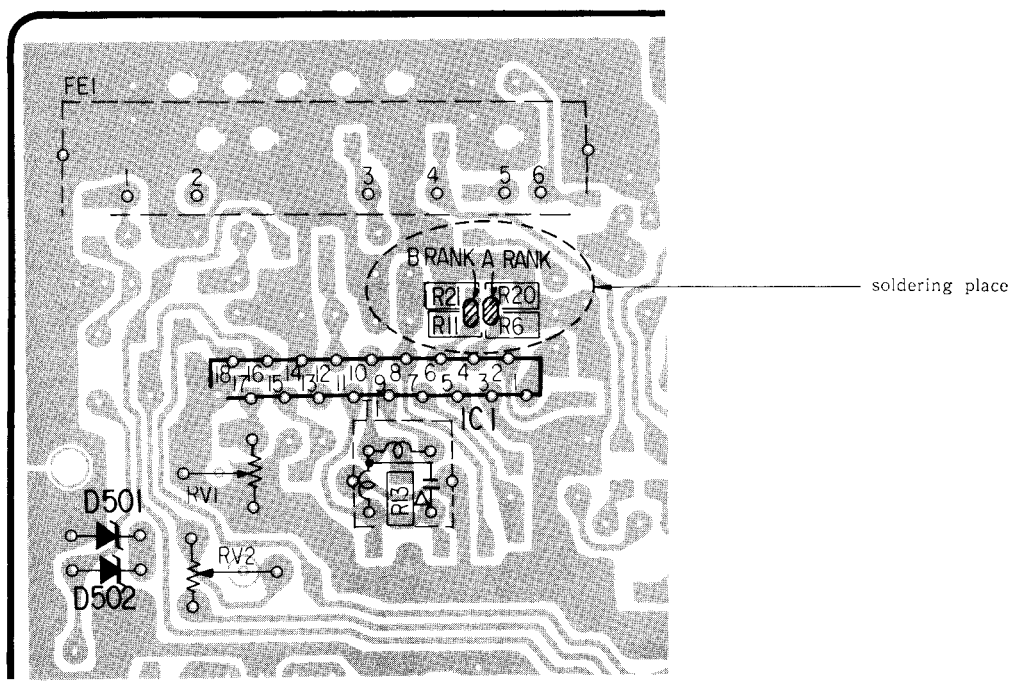
Replacement of the front-end

When replacing the front-end (FE1), solder between R6 and R20 for the A rank, and between R11 and R21 for the B rank, in accordance with the ranking.

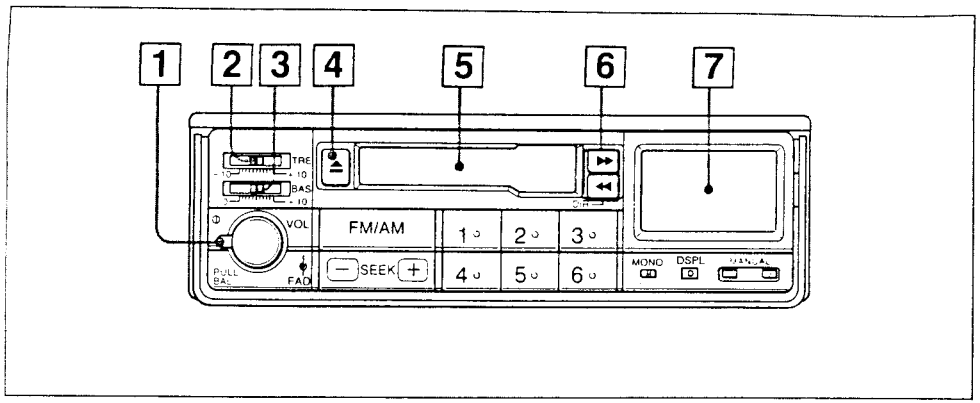
Front-end (FE1)

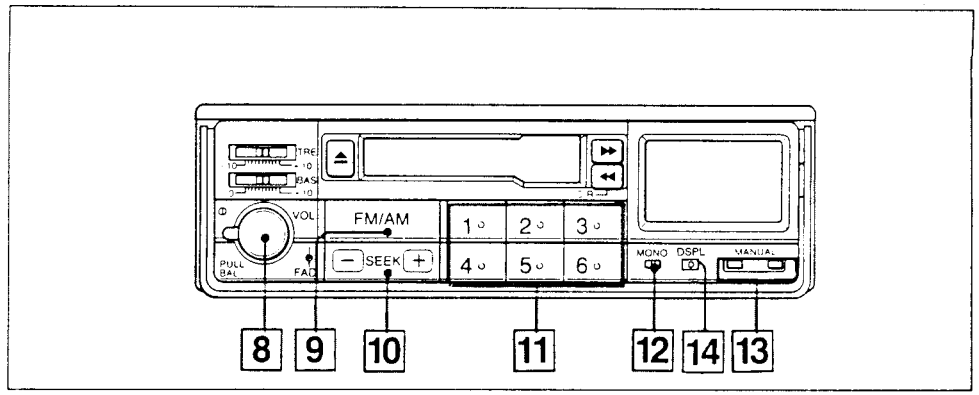


[MAIN BOARD] (CONDUCTOR SIDE)



SECTION 1
GENERAL





1 FAD (fader) control
Turn clockwise to decrease the volume of the rear speakers or counterclockwise to decrease the volume of the front speakers.

2 TRE (treble) level control

3 BAS (bass) boost control

4 ⏏ (eject) button
Press to stop the tape and take out the cassette.

5 Cassette insertion door

6 ◀◀ / ▶▶ (fast winding) buttons/DIR (tape transport direction change) buttons
During playback, depress ◀◀ or ▶▶ for fast winding, or press both ◀◀ and ▶▶ simultaneously to listen to the other side of the cassette.

7 Display window

8 Power on·off switch/VOL (volume) control/PULL BAL (balance) control

Power on·off switch	Press to turn on and off the unit.
VOL control	Turn clockwise to increase volume and counterclockwise to decrease.
PULL BAL control	While pulling the control, turn to adjust the balance of the left and right channel output.

9 FM/AM band selector
Press to select the desired band, FM 1, FM 2, or AM.

10 SEEK −/+ button
Press − side to search for lower frequencies and + side for higher frequencies.

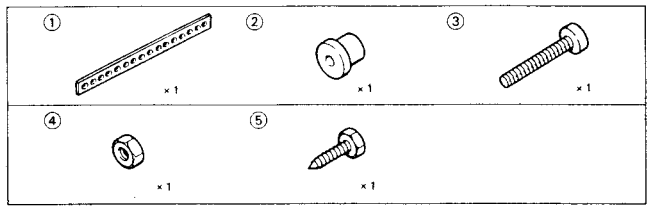
11 Preset buttons

12 MONO (monaural) button
Press to reduce noise during reception of a weak FM stereo program. To listen to in stereo, press it again.

13 MANUAL −/+ button
Press to tune in the desired station manually.

14 DSPL (display) button (Provided only for XR-4147)
Press to display the time indication during radio reception.

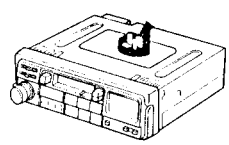
XR-4150/4157 :



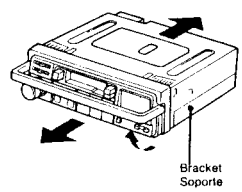
XR-4150/4157 :

To Install the Unit in the Dashboard
Para fijar la unidad en el salpicadero

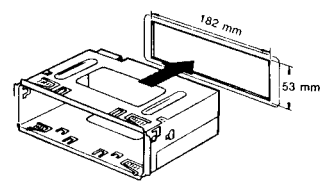
1 Remove the transit lock by turning it 90°.
Quite el seguro de transporte girándolo 90°.



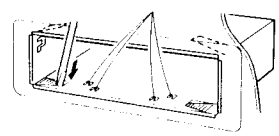
2 Remove the bracket.
Quite el soporte.



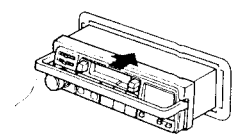
3 Install the bracket in the dashboard.
Instale el soporte en el salpicadero.



Bend these claws, if necessary.
Doble estas uñas, si es necesario.



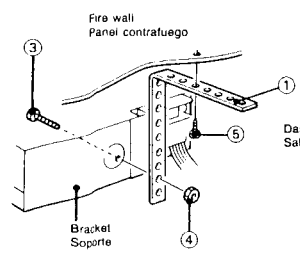
4 Secure the unit.
Asegure la unidad.



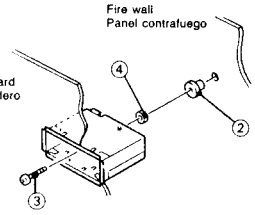
Push in the unit until it is locked firmly.
Empuje la unidad hasta que se enganche firmemente.

To Support the Unit
Para fijar la unidad

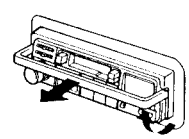
Example 1
Ejemplo 1



Example 2
Ejemplo 2



To Remove the Unit
Para extraer la unidad



This prevents your car stereo set from being stolen.

Así evitará que le roben el sistema estéreo para automóviles.

XR-4150/4157 :
Connections

Caution

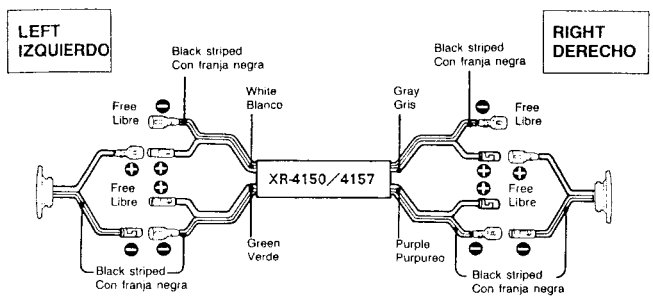
- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **red** power input lead only after all other leads are connected. And be sure to connect it to the positive 12 V power terminal. It will be energized when the ignition key is set to the accessory position.
- **Run all ground wires to a common ground point.**

Precauciones

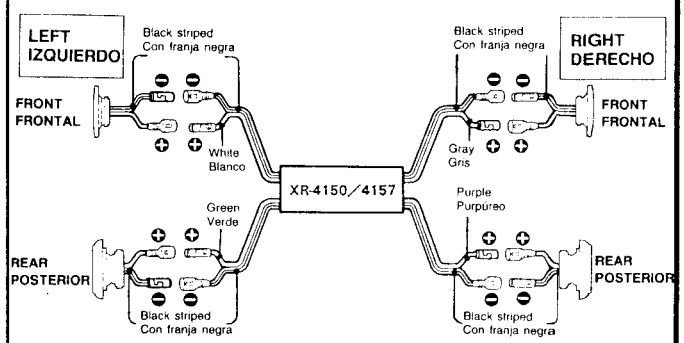
- Esta unidad ha sido diseñada para funcionar solamente con 12 V CC y negativo a masa.
- Antes de realizar las conexiones, desconecte el terminal de masa de la batería del automóvil a fin de evitar cortocircuitos.
- Conecte el conductor de entrada de alimentación **rojo** después de haber conectado los demás. No se olvide de conectarlo al terminal de alimentación de 12 V positivo. Este conductor deberá excitarse al poner la llave de encendido en la posición para accesorios.
- **Conecte todos los terminales de masa a un punto común del automóvil.**

Speaker Connection
Conexión de los altavoces

2-speaker connection
Conexión de un sistema de 2 altavoces



4-speaker connection
Conexión de un sistema de 4 altavoces



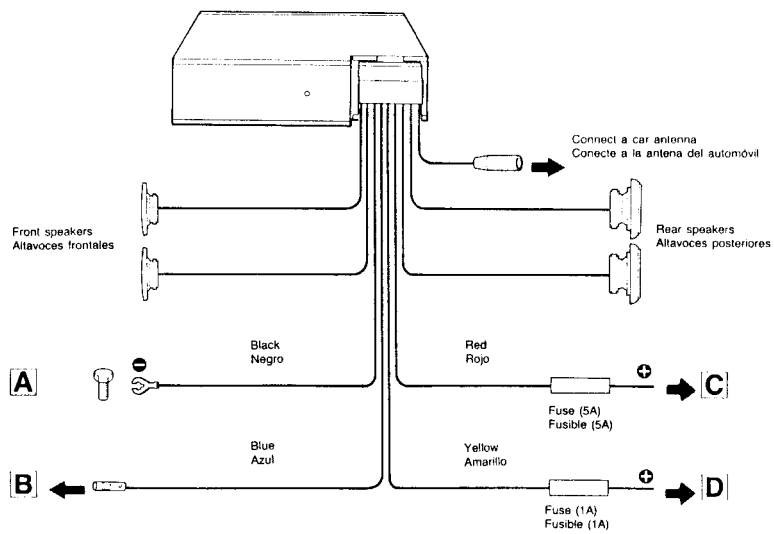
Notes on speaker connection

- Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.
- Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.

Notas sobre la conexión de altavoces

- Emplee un sistema de altavoces de 4 a 8 ohmios de impedancia y con la potencia admisible adecuada. De lo contrario, los altavoces podrían dañarse.
- No conecte los terminales de los altavoces al chasis del automóvil ni conecte los terminales del altavoz derecho a los del izquierdo.

Connection Diagram
Diagrama de conexiones



[A]: to a metal point of the car

[B]: to the power antenna relay control box (Maximum supply current 0.1 A)

[C]: to the + 12 V power terminal which is energized with the ignition key in the accessory position

[D]: to the + 12 V power terminal which is energized at all times

Cord color
Red: Power input lead
Yellow: Power input lead
Blue: Power antenna relay control lead
Black: Ground wire

[A]: a un punto metálico del automóvil

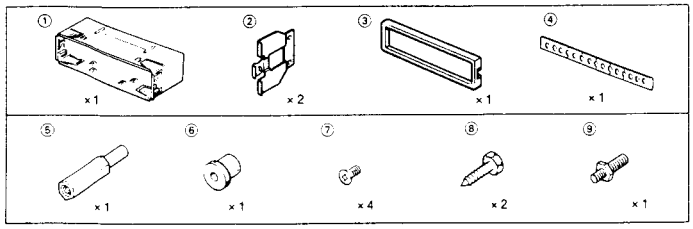
[B]: a la caja de control po. .elé de la antena motorizada (suministro máximo de corriente 0,1 A)

[C]: al terminal de alimentación de + 12 V que se excita al poner la llave de encendido en la posición para accesorios

[D]: al terminal de alimentación de + 12 V que está siempre excitado

Color de los conductores
Rojo: conductor de entrada de alimentación
Amarillo: conductor de entrada de alimentación
Azul: conductor de control por relé de la antena motorizada
Negro: conductor de puesta a carrocería

XR-4140/4147 :

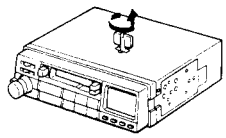


XR-4140/4147 :

Installation
Installation

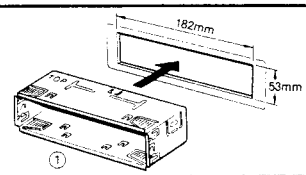
Basic Installation/Installation de base

1

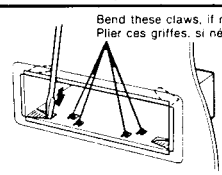


Remove the transit lock by turning it 90°.
Enlever la vis de transport en la tournant de 90 degrés.

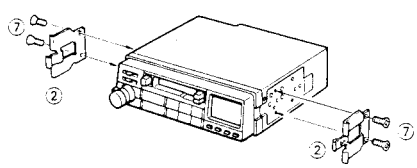
2



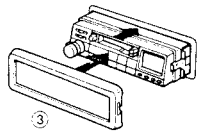
3



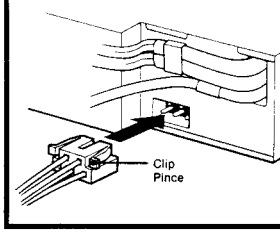
4



5



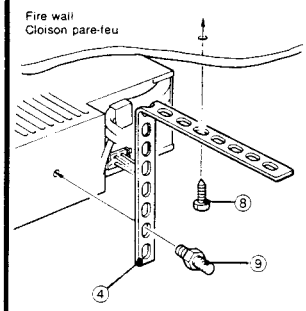
Power Cord Attachment
Fixation du cordon d'alimentation



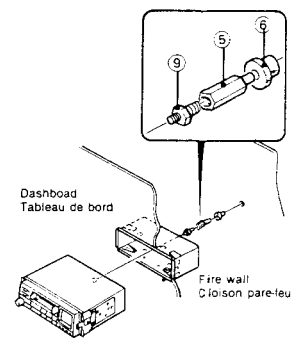
To remove, push in the clips, and pull it out.
Pour retirer, pousser sur les pinces et tirer sur le connecteur.

To Support the Unit
Pour supporter l'appareil

Example 1
Exemple 1



Example 2
Exemple 2



XR-4140/4147 :

Connections
Connexions

Caution

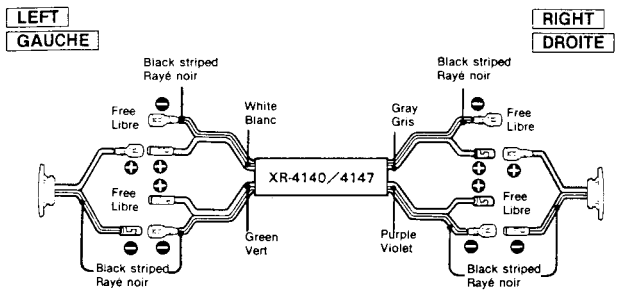
- This unit is designed for negative ground 12 V DC operation only.
- Before making connections, disconnect the ground terminal of the car battery to avoid short circuits.
- Connect the **red** power input lead only after all other leads are connected. And be sure to connect it to the positive 12 V power terminal. It will be energized when the ignition key is set to the accessory position.
- **Run all ground wires to a common ground point.**

Attention

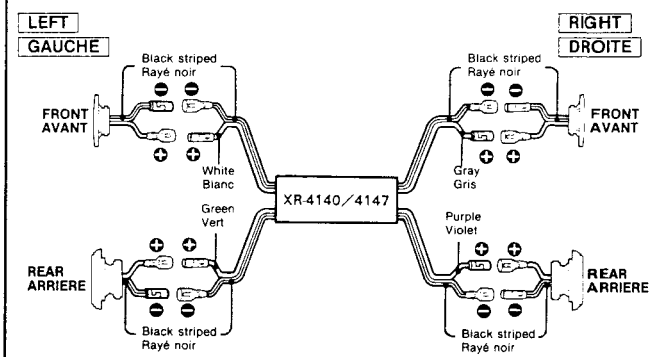
- Cet appareil est uniquement conçu pour un fonctionnement sur courant continu de 12 volts avec masse négative.
- Avant d'effectuer les connexions, déconnecter la borne de masse de la batterie de voiture pour éviter un court-circuit.
- Connecter le fil d'alimentation **rouge** uniquement une fois que tous les autres fils ont été connectés. S'assurer de le connecter à la borne de 12 volts positif. L'alimentation est fournie lorsque la clé de contact est mise sur la position accessoire.
- **Faire cheminer tous les fils de masse à une masse commune.**

Speaker Connection
Connexion des haut-parleurs

2-spaker connection
Connexion de deux haut-parleurs



4-speaker connection
Connexion de quatre haut-parleurs



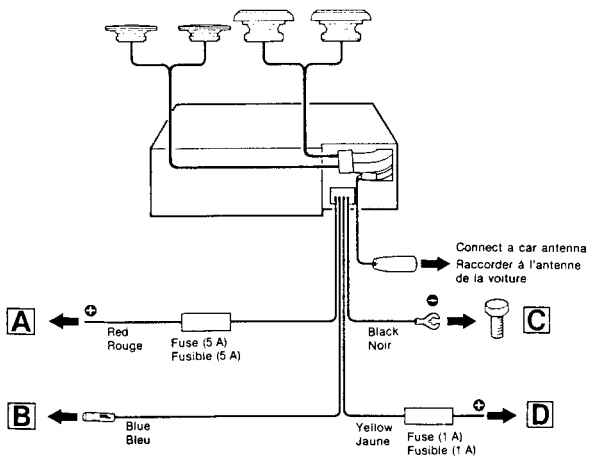
Notes on speaker connection

- Use speakers with an impedance of 4 to 8 ohms, and with adequate power handling capacities. Otherwise, the speakers may be damaged.
- Do not connect the terminals of the speaker system to the car chassis, and do not connect the terminals of the right speaker with those of the left speaker.

Remarques sur la connexion des haut-parleurs

- Utiliser des haut-parleurs d'une impédance de 4 à 8 ohms et ayant une puissance nominale adéquate. Dans le cas contraire, les haut-parleurs peuvent être endommagés.
- Ne pas connecter les bornes du système de haut-parleur au châssis de la voiture et ne pas connecter non plus les bornes des haut-parleurs de droite avec celles des haut-parleurs de gauche.

Connection Diagram
Schéma des connexions



A To the + 12 V power terminal which is energized with the ignition key in the accessory position
B To the power antenna relay control box (Maximum supply current 0.1 A)
C To a metal point of the car
D To the + 12 V power terminal which is energized at all times

Cord color
Red: Power input lead
Yellow: Power input lead
Blue: Power antenna relay control lead
Black: Ground wire

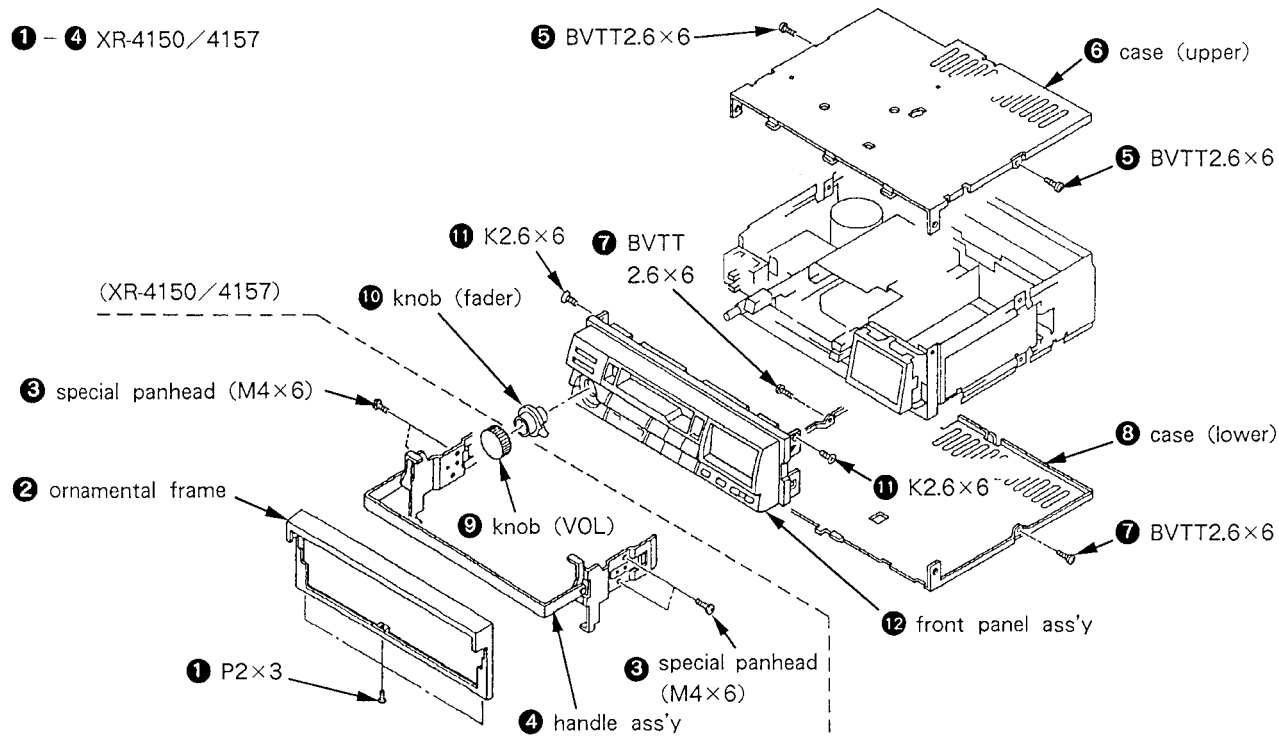
A à la borne d'alimentation de + 12 volts qui est énergétisée lorsque la clé de contact est sur la position accessoire
B au boîtier de contrôle de relais d'antenne moteur (Courant d'alimentation maxium 0,1 A)
C à un point métallique de la voiture
D à la borne d'alimentation de + 12 volts qui est énergétisée tout le temps

Couleur des cordons
Rouge: Fil d'entrée d'alimentation
Jaune: Fil d'entrée d'alimentation
Bleu: Fil de contrôle de relais d'antenne moteur
Noir: Fil de masse

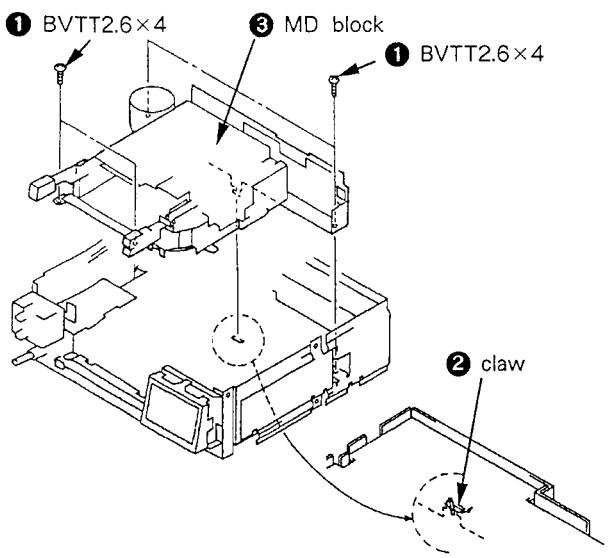
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

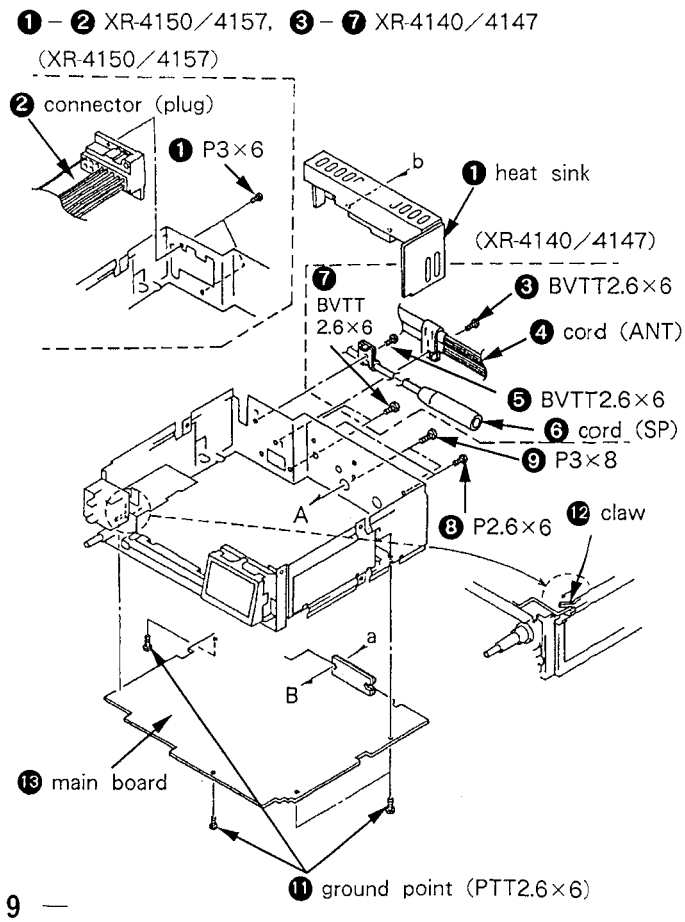
[FRONT PANEL]



[MD BLOCK]



[MAIN BOARD]



SECTION 3
ADJUSTMENTS

3-1. MECHANICAL ADJUSTMENT

No mechanical adjustments applied to this unit.

● Torque Measurement

Mode	Torque Meter	Torque
FWD	CQ-102C	40 to 75 g · cm (0.56 to 1.04 oz · inch)
REV	CQ-102RB	
Back tension	CQ-102B	1.5 to 5 g · cm (0.02 to 0.07 oz · inch)
FF	CQ-201B	45 to 150 g · cm (0.62 to 2.08 oz · inch)
REW		

3-2. ELECTRICAL ADJUSTMENTS

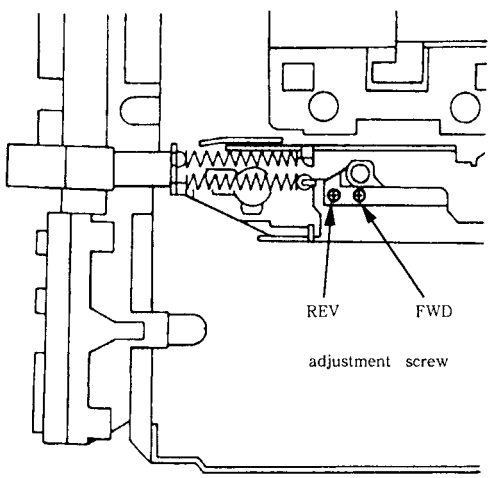
Note : The adjustment should be performed in the order given in this service manual.
The adjustments should be performed for both L-CH and R-CH.

- Power-supply voltage is +14.4V DC as per Ad Hoc recommendation.
- Switches and controls should be set as follows unless otherwise specified.

  PUSH RADIO switch : RADIO
  PULL BALANCE control : center click

TAPE SECTION

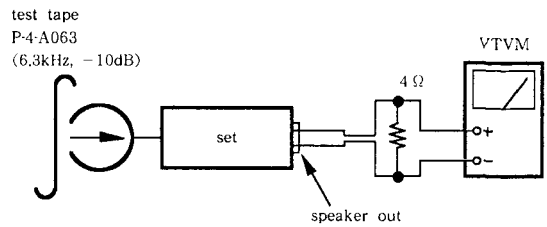
Adjustment Location :



Playback Head Azimuth Adjustment

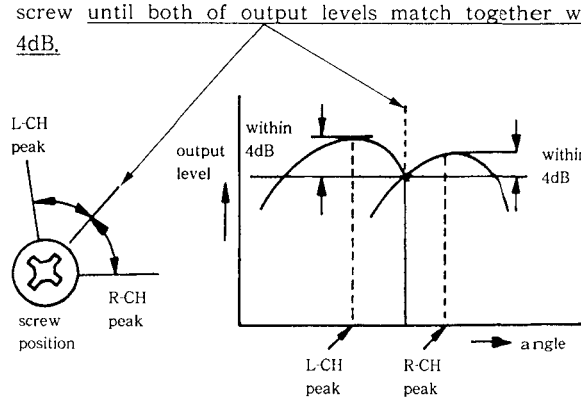
Procedure :

1. Mode : playback

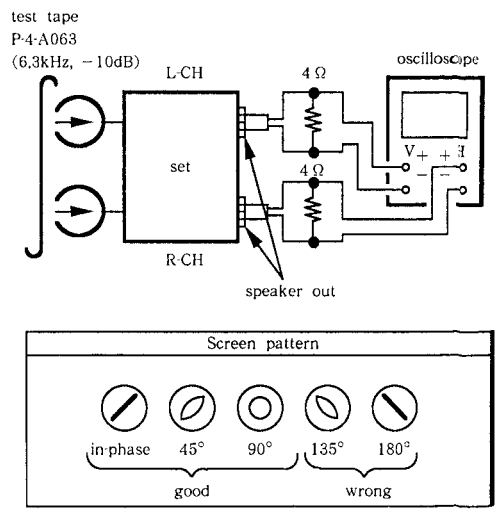


Adjust for forward (▶) direction and reverse (◀) direction.

2. Turn the adjustment screw for the maximum output levels. If these levels do not match, turn the adjustment screw until both of output levels match together within 4dB.



3. Phase Check
Confirm that phase difference between L-channel and R-channel is within 90°

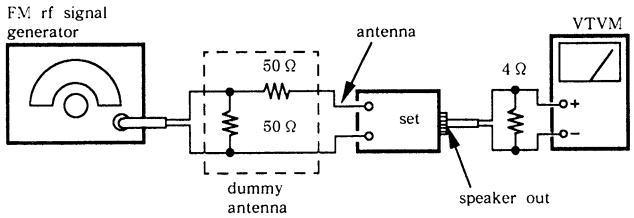


4. Repeat the above adjustment for reverse playback mode.
5. After the adjustment, lock the screw with locking compound.

FM Stereo Separation Adjustment

Setup :

BAND : FM Stereo
Frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP



Carrier frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP
Output level : 70dB (3.15mV)
Modulation : 1kHz
main : 33.75kHz dev.
sub : 33.75kHz dev.
19kHz pilot : 7.5kHz dev.

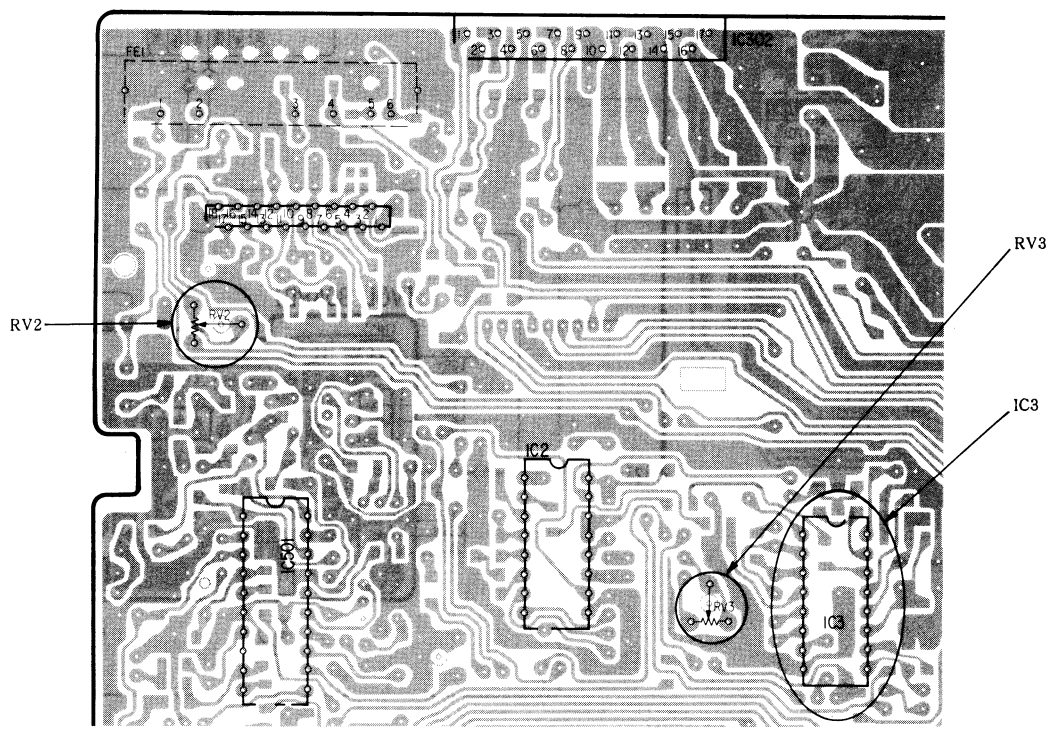
Procedure :

Adjust RV3 for a best stereo separation.

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV3 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV3 for minimum reading.

L-CH stereo separation : Ⓐ - Ⓑ
R-CH stereo separation : Ⓒ - Ⓓ
The separations of both channels should be equal.

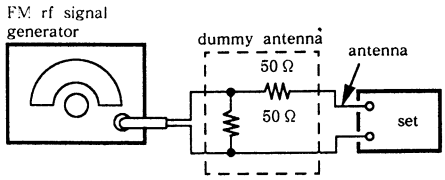
Adjustment Location : main board



Stereo Auto Hi-blend Adjustment

Setup :

BAND : FM Stereo
Frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP

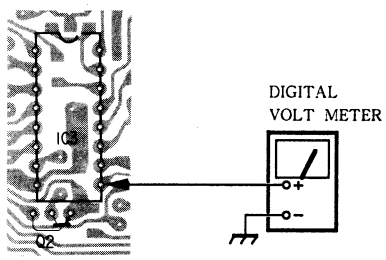


Carrier frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP
Mode : monaural, no modulation
Output level : 40dB (100 μ V)

Procedure :

Adjust RV2 so that voltage at terminal ⑧ of IC3 is 0.6±0.01V when the FM rf signal generator is L-ch or R-ch output only.

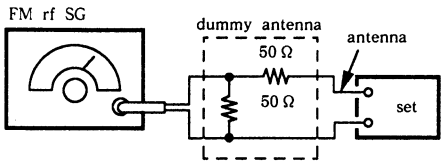
Adjustment Location : main board



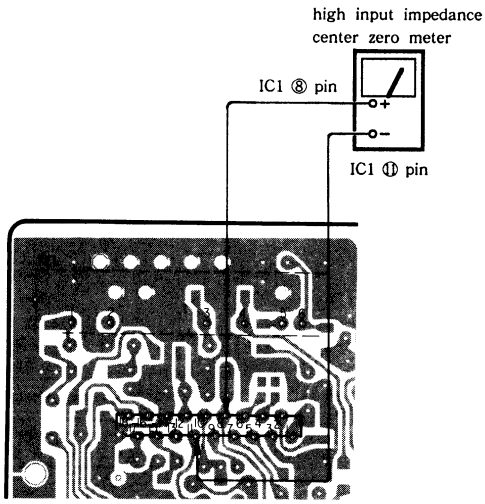
FM Discriminator Adjustment

Setting :

BAND : FM MONO



Carrier frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP
Output level : 60dB (1mV)
Modulation : 1kHz, 75kHz deviation (100%)



Procedure :

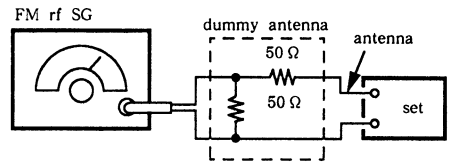
1. Slowly adjust the core of T1 to obtain a zero (0) V reading on high impedance center zero meter.

Adjustment Location : Main board·

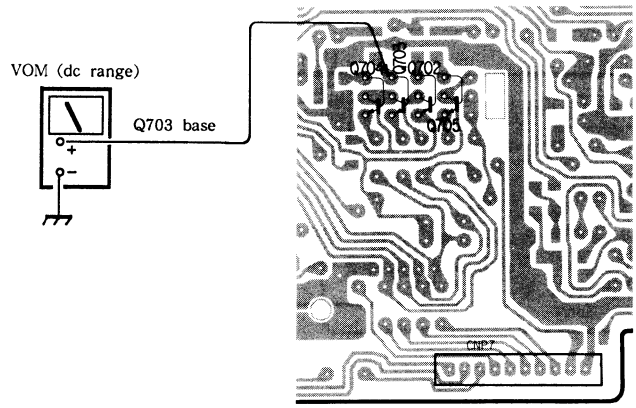
FM Auto-scan Stop Level Adjustment

Setup :

Band switch : FM MONO
Frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP

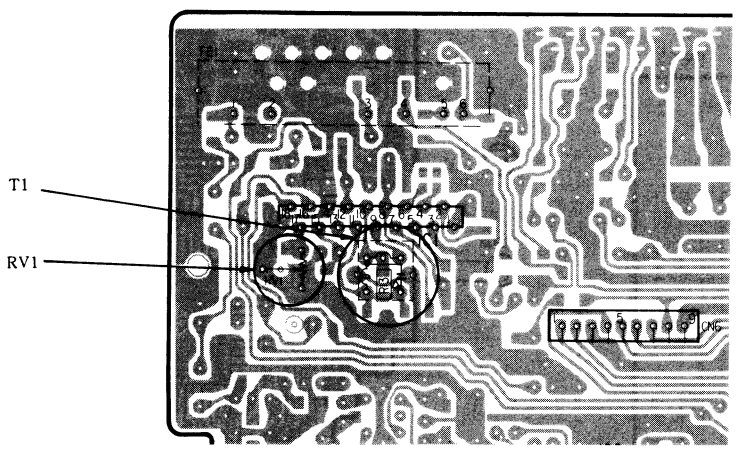


Carrier frequency : 98.1MHz : US, Canadian
98.0MHz : E, AEP
Modulation : no modulation
Output level : 25dB



Procedure :

1. Adjust RV1 at the point where the VOM reading changes from low to high.
2. Confirm that the set stops auto-scanning with FM RF SSG output level set at 25±2dB.
   Confirm that the set does not stop auto-scanning at level of (stop level+1) dB.



AM SECTION

AM Auto-scan Stop Level Adjustment

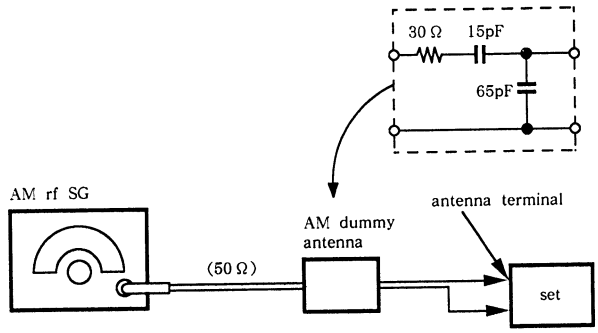
Note :Be sure to perform this adjustment after "FM Auto-scan Stop Adjustment".

Setup :

Band : MW

Frequency : 1000kHz : XR-4140／4147／4157

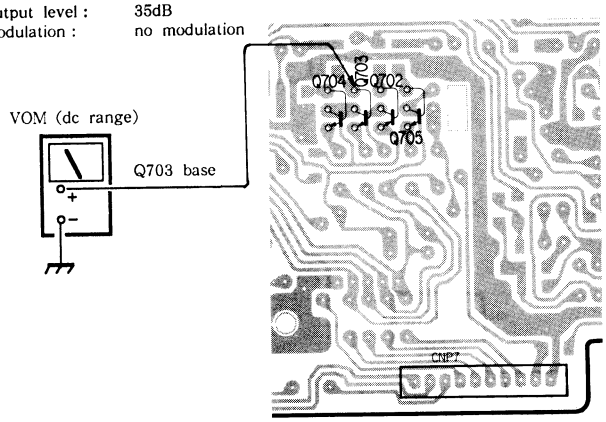
999kHz : XR-4150



Carrier frequency : 1000kHz : XR-4140／4147／4157
999kHz : XR-4150

Output level : 35dB

Modulation : no modulation

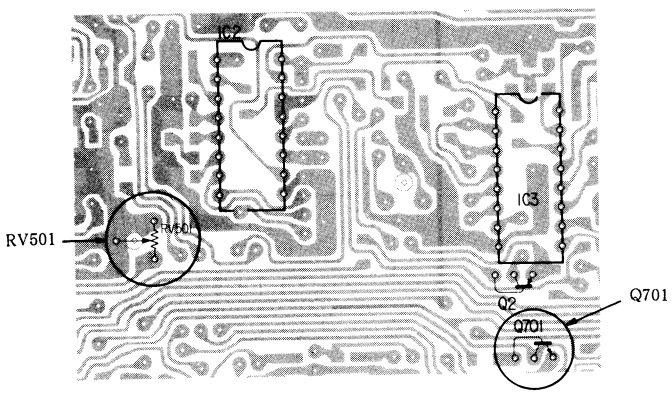


Procedure :

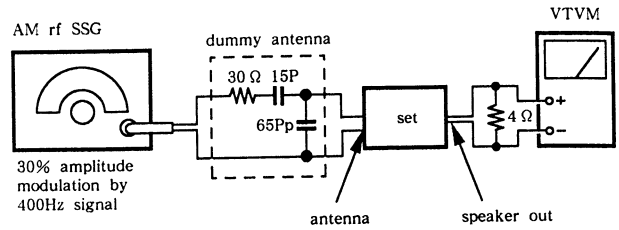
1. Adjust RV501 at the point where the VOM reading changes from low to high.
2. Confirm that the set stops auto-scanning with AM RF SG output level set at 35±2dB.
   Confirm that the set does not stop auto-scanning at level of (stop level+1) dB.

Note :When adjusting connect Q701 base to the ground.

Adjustment Location : main board



Setting :



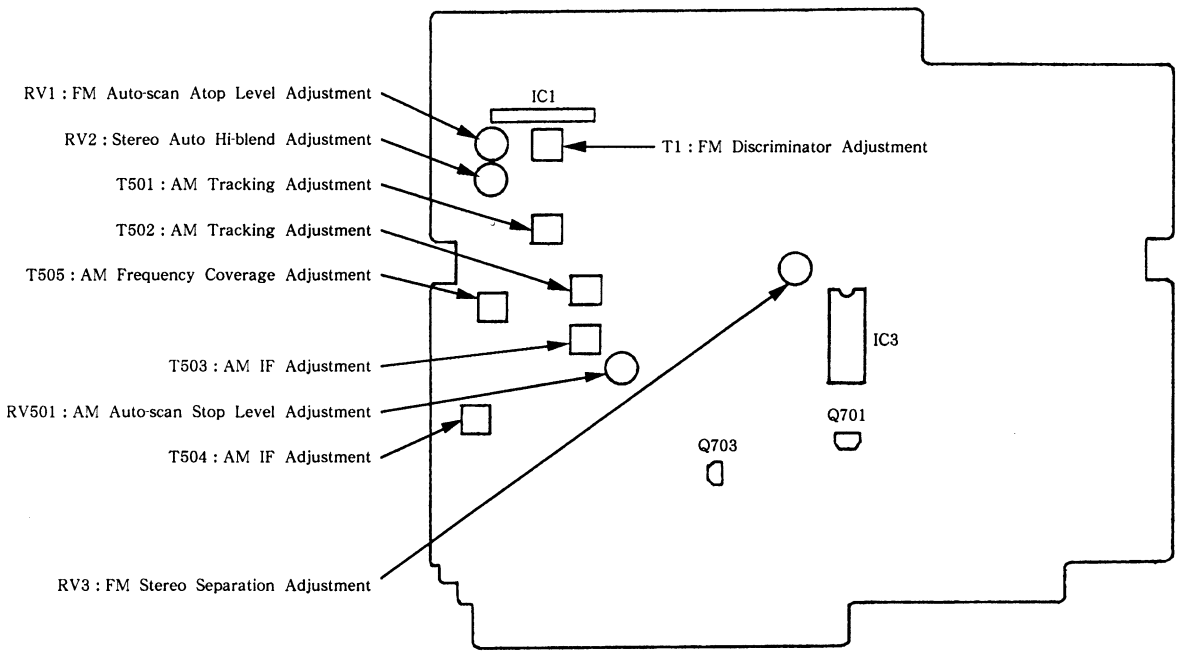
AM IF ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T503, 504	450kHz

AM TRACKING ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T501 T502	XR-4140／4147／4157 : 600Hz XR-4150 : 603Hz

AM FREQUENCY COVERAGE ADJUSTMENT	
Adjust for a maximum reading on VTVM.	
T505	XR-4140／4147／4157 : 530Hz XR-4150 : 531kHz

ADJUSTMENT LOCATION

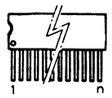
【MAIN BOARD】(CONDUCTOR SIDE)


RV1 : FM Auto-scan Atop Level Adjustment
RV2 : Stereo Auto Hi-blend Adjustment
T501 : AM Tracking Adjustment
T502 : AM Tracking Adjustment
T505 : AM Frequency Coverage Adjustment
T503 : AM IF Adjustment
RV501 : AM Auto-scan Stop Level Adjustment
T504 : AM IF Adjustment
RV3 : FM Stereo Separation Adjustment
IC1
T1 : FM Discriminator Adjustment
IC3
Q701
Q703

SECTION 4
DIAGRAMS

4-1. SEMICONDUCTORS LEAD LAYOUT

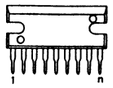
LA1145



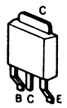
2SC2001-L

AA3822K

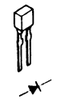
TA8205HA



2SD1802



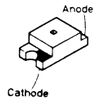
BG3822K-104



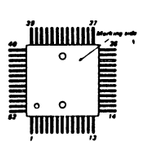
μPC1228HA

2SK523-L2

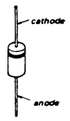
LC50Y/CD



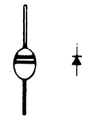
μPD1708AG-826-00



1SS101

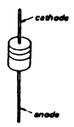


DSA3A4

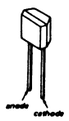


2SA1150
2SA1175-HFE
2SC2785-HFE
2SD1020-F
2SD1021

11ES2
1SS119
RD10ES-B2
RD16ES-B2
RD5.6ES-B2
RD6.2ES-B2
RD8.2ES-B2
RD9.1ES-B2



SVC321SP-C3



2SC2840-D

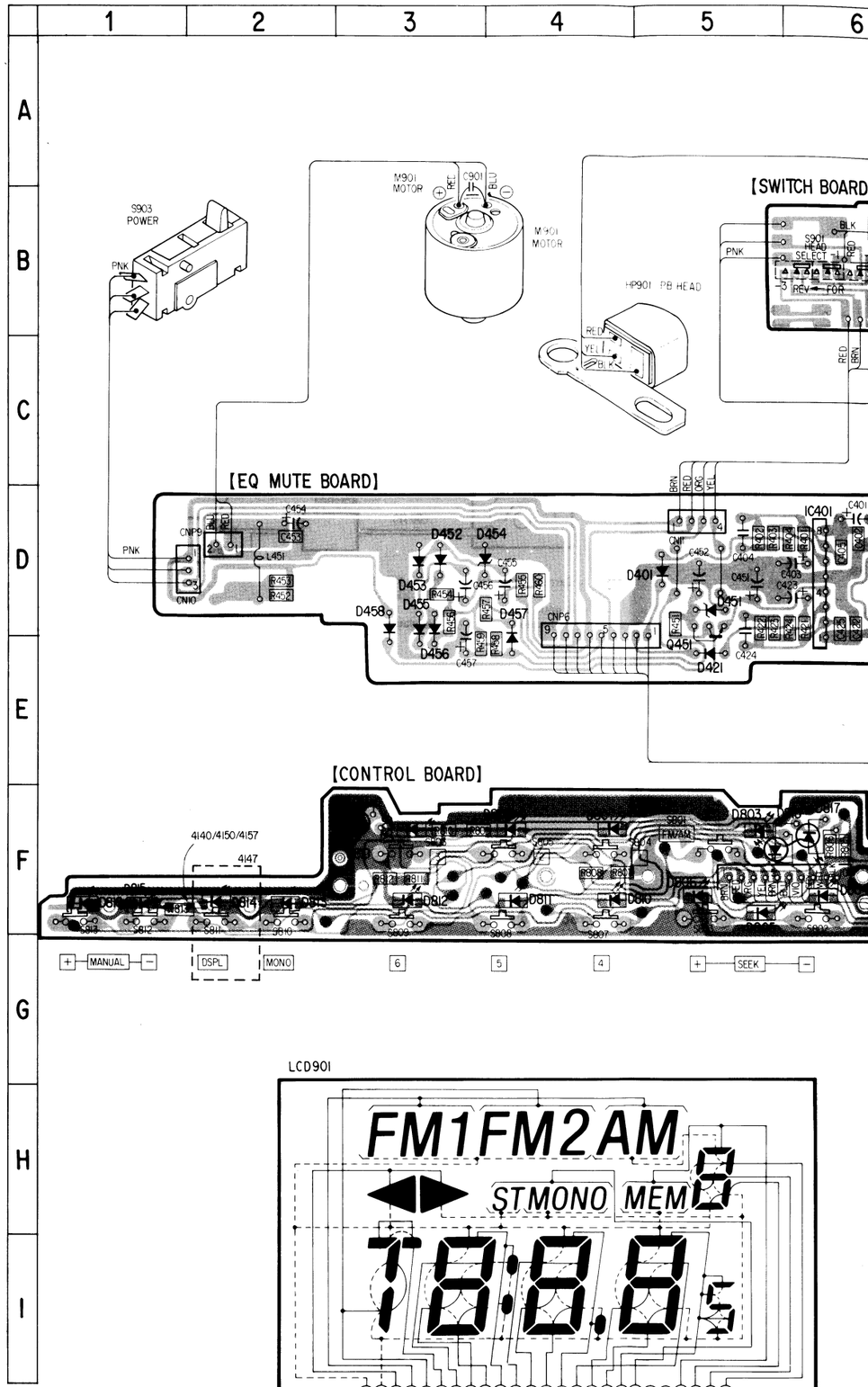
Note :

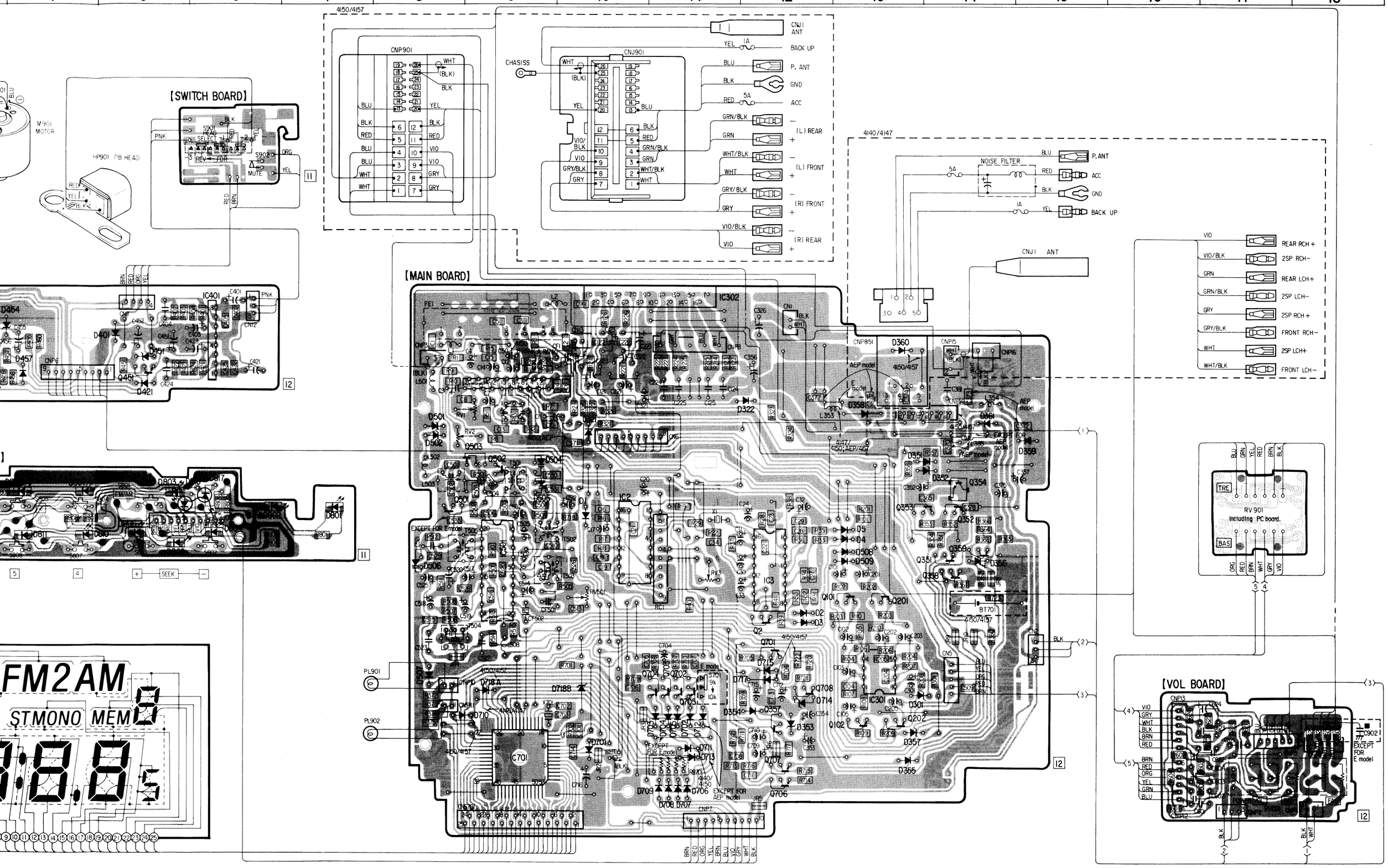
- ○— : parts extracted from the component side.
- ■ : parts mounted on the conductor side.
- ● : Through hole.
- ▒ : Pattern on the side which is seen.
- ▒ : Pattern of the rear side.
- ▭ : Chip components extracted from the rear side.

● SEMICONDUCTOR LOCATION

Ref. No.	Location	Ref. No.	Location
IC1	E-9	D451	D-5
IC2	F-10	D452	D-3
IC3	G-12	D453	D-3
IC301	H-13	D454	D-3
IC401	D-6	D455	D-3
IC501	G-9	D456	D-3
IC701	I-9	D457	D-4
		D458	D-3
		D501	E-8
Q2	G-12	D502	E-8
Q101	G-13		
Q102	H-13	D504	E-9
Q201	G-13	D505	F-9
Q202	H-13	D506	G-8
		D507	H-8
Q351	G-14	D508	F-13
Q352	F-14		
Q353	F-14	D509	G-13
Q354	F-14	D701	I-10
Q357	H-12	D702	H-11
		D703	H-11
Q358	G-14	D704	H-11
Q359	F-14		
Q451	E-5	D705	H-11
Q501	F-8	D706	I-11
Q502	F-9	D707	I-11
		D708	I-11
Q503	E-9	D709	I-11
Q701	H-12		
Q702	H-11	D710	H-8
Q703	H-11	D711	I-11
Q704	H-11	D712	H-11
		D713	I-11
Q705	H-11	D714	H-12
Q706	I-12		
Q707	I-12	D715	H-12
Q708	H-12	D717	H-12
		D718A	H-9
		D718B	H-10
D1	F-10	D801	F-7
D2	G-12		
D3	G-12	D802	F-6
D4	F-13	D803	F-5
D5	F-13	D804	F-6
		D805	F-5
D301	H-13	D806	F-5
D321	E-10		
D322	E-12	D807	F-4
D351	E-14	D808	F-4
D352	F-14	D809	F-3
		D810	F-4
D353	H-12	D811	F-4
D354	H-12		
D355	I-13	D812	F-3
D356	G-14	D813	F-2
D357	H-13	D814	F-2
		D815	F-1
D358	E-13	D816	F-1
D359	E-15		
D360	D-13	D817	F-6
D361	E-14	D818	F-5
D401	D-5	D819	F-3
D421	E-5		

4-2. PRINTED WIRING BOARDS




4150/4157
CNP901
CNJ901
CHASSIS
CNJ1 ANT
BACK UP
P. ANT
GND
ACC
(L) REAR
(L) FRONT
(R) FRONT
(R) REAR
4140/4147
NOISE FILTER
REAR RCH+
2SP RCH−
REAR LCH+
2SP LCH−
2SP RCH+
FRONT RCH−
2SP LCH+
FRONT LCH−
[SWITCH BOARD]
M901 MOTOR
HP901 PB HEAD
S901 HEAD SELECT
REV FOR
S902 MUTE
[MAIN BOARD]
IC302
IC401
IC701
IC2
IC3
IC30
CNP851
CNP15
CNP16
CNP6
CNP7
CNP12
CNP13
CNP14
D360
D358
D361
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D322
D501
D502
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D504
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D708
D709
D706
D710
D718A
D718B
D7188
D714
D715
D716
D2
D3
D4
D5
D0508
D0509
D301
D351
D352
D356
Q354
Q353
Q359
Q351
Q358
Q101
Q201
Q202
Q102
Q701
Q702
Q703
Q704
Q705
Q706
Q708
BT701
4150/4157
AEP model
E model
EXCEPT FOR E model
EXCEPT FOR AEP model
[VOL BOARD]
RV 901
including PC board.
TRE
BAS
C902
PL901
PL902
FM2AM
STMONO MEM
SEEK
D803
D801
D811
D810
D807
D808
D809
D802
D804
D805
D806
D454
D457
D451
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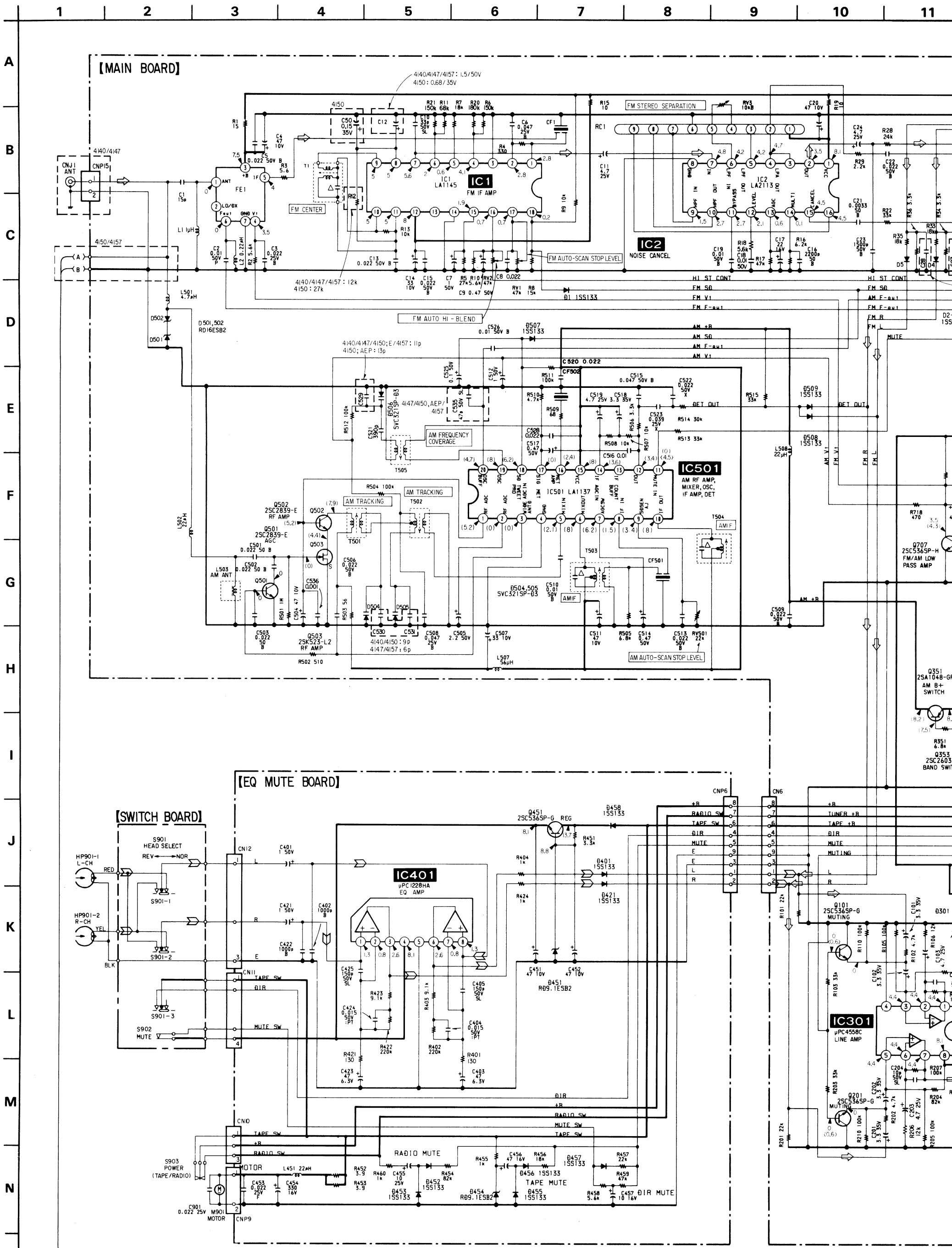
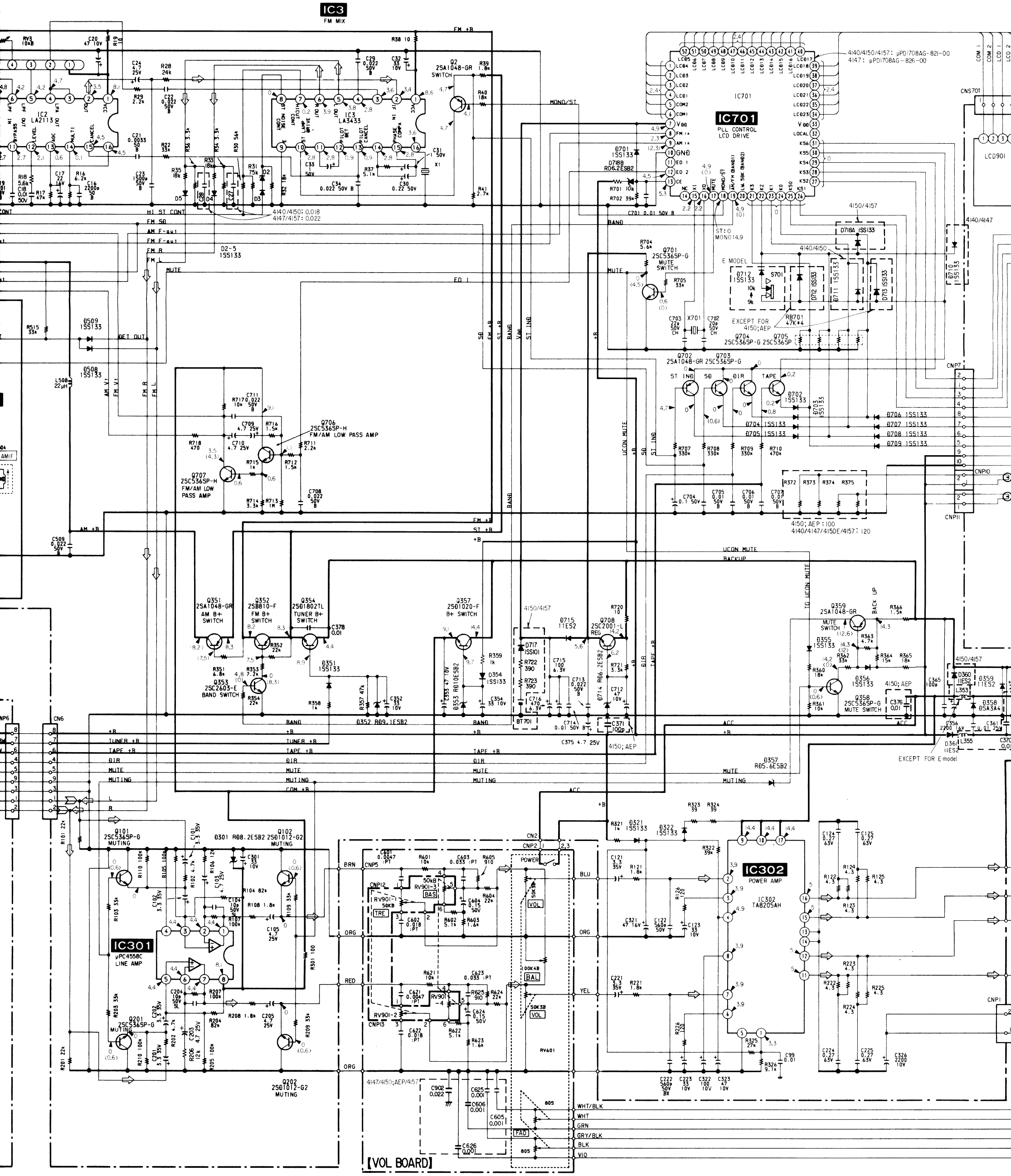
4-3. SCHEMATIC DIAGRAM




IC3
FM MIX
IC2
LA2113
IC3
LA3433
IC701
PLL CONTROL
LCD DRIVE
4140/4150/4157: μPD1708AG-821-00
4147: μPD1708AG-826-00
IC301
μPC4558C
LINE AMP
IC302
POWER AMP
TA8205AH
Q2 2SA1048-GR SWITCH
Q701 2SC536SP-G MUTE SWITCH
Q702 2SA1048-GR
Q703 2SC536SP-G
Q704 2SC536SP-G
Q705 2SC536SP
Q706 2SC5365P-H FM/AM LOW PASS AMP
Q707 2SC5365P-H FM/AM LOW PASS AMP
Q708 2SC2001-L REG
Q351 2SA1048-GR AM B+ SWITCH
Q352 2SB810-F FM B+ SWITCH
Q354 2SD1802TL TUNER B+ SWITCH
Q357 2SD1020-F B+ SWITCH
Q353 2SC2603-E BAND SWITCH
Q359 2SA1048-GR
Q101 2SC536SP-G MUTING
Q102 2SD1012-G2 MUTING
Q201 2SC536SP-G MUTING
Q202 2SD1012-G2 MUTING
D508 1SS133
D509 1SS133
D701 1SS133
D702 1SS133
D703 1SS133
D704 1SS133
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D708 1SS133
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D711 1SS133
D712 1SS133
D713 1SS133
D718A 1SS133
D718B RD6.2ESB2
D715 11ES2
D717 1SS101
D352 RD9.1ESB2
D357 RD5.6ESB2
D301 RD8.2ESB2
D321 1SS133
D322 1SS133
D355 1SS133
D356 1SS133
D358 DSA3A4
D359 11ES2
D360 11ES2
D361 11ES2
D2-5 1SS133
BT701
RV601
RV901-1 50kB TRE
RV901-2 50K3B VOL
RV901-3 50kB BAS
RV901-4 100K4B BAL
S701
CNS701
LCD901
CNP7
CNP10
CNP11
CNP1
CNP2
CNP5
CNP12
CNP13
CN2
CN6
CNP6
FM +B
AM +B
ST +B
+B
MONO/ST
HI ST CONT
FM SD
AM F-adj
FM F-adj
FM R
FM L
MUTE
EQ 1
BAND
DET OUT
AM V1
FM V1
FM R
FM L
SD
ST +B
BAND
Vdd
ST IND
UCON MUTE
SD
ST IND
BACK UP
TO UCON MUTE
ACC
+B
TUNER +B
TAPE +B
DIR
MUTE
MUTING
COM +B
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YEL
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WHT/BLK
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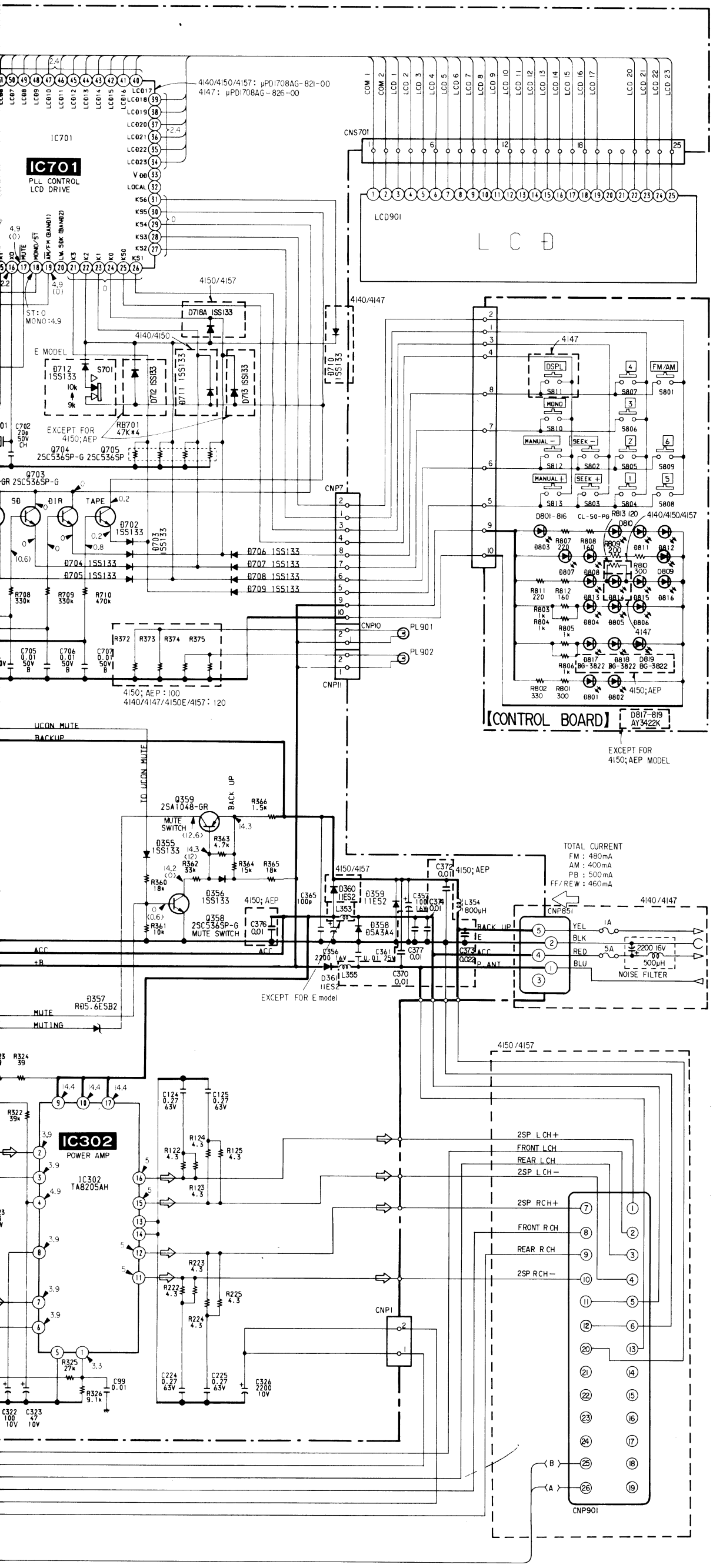
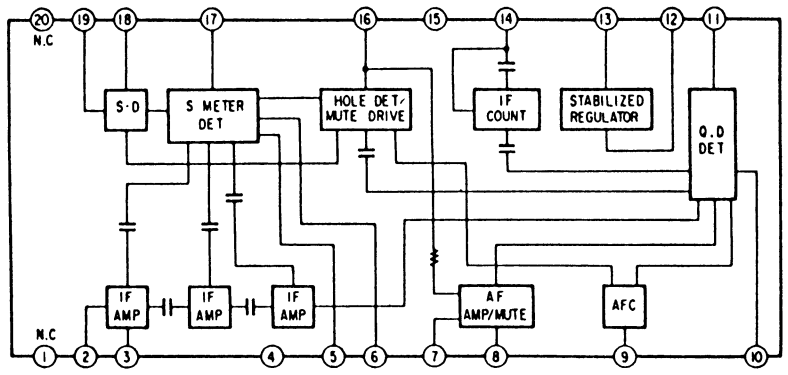
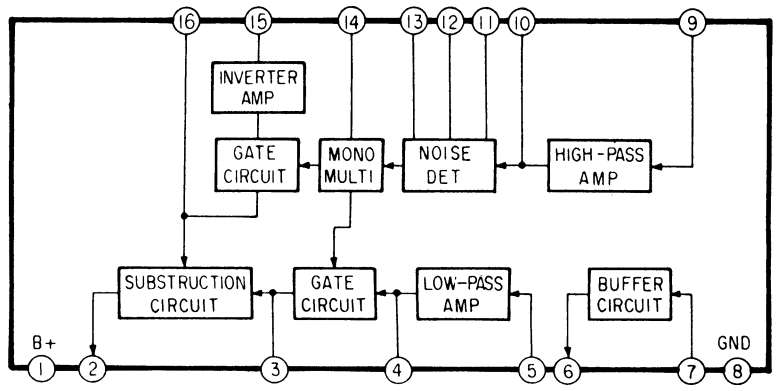
GRY/BLK
BLK
VIO
POWER
VOL
BAL
FAD
4140/4150: 0.018
4147/4157: 0.022
4140/4150
4150/4157
4140/4147
E MODEL
EXCEPT FOR 4150;AEP
EXCEPT FOR E model
4150; AEP
4147/4150;AEP/4157
4150; AEP : 100
4140/4147/4150E/4157 : 120
【VOL BOARD】



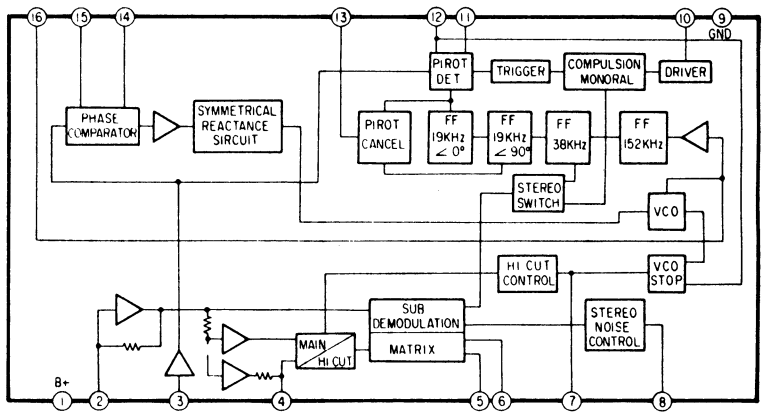
IC1 LA1145



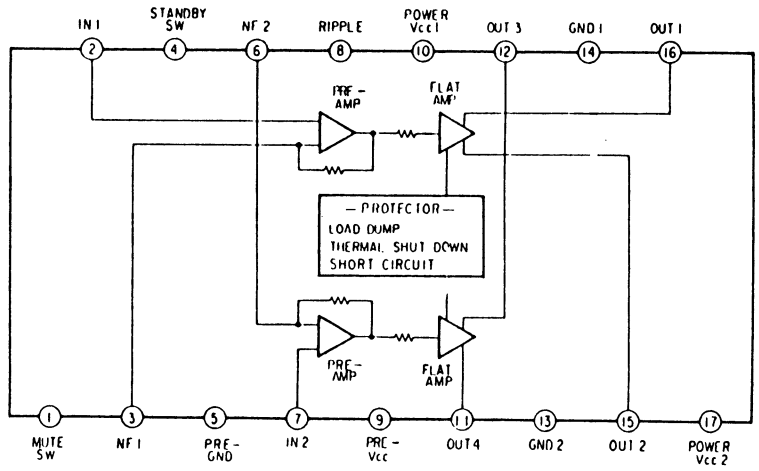
IC2 LA2113



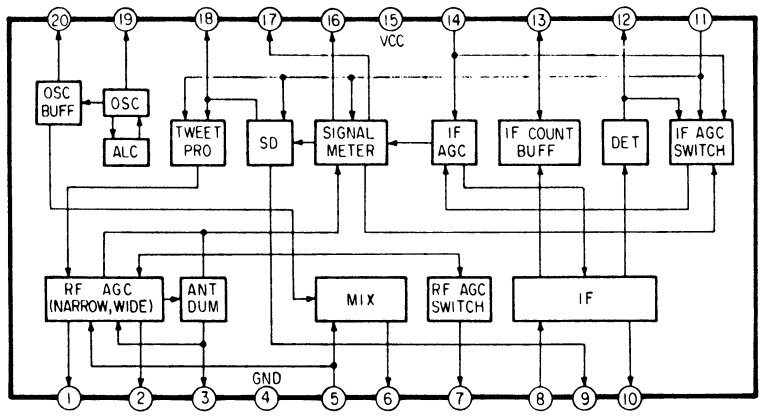
IC3 LA3433



IC302 TA8205AH



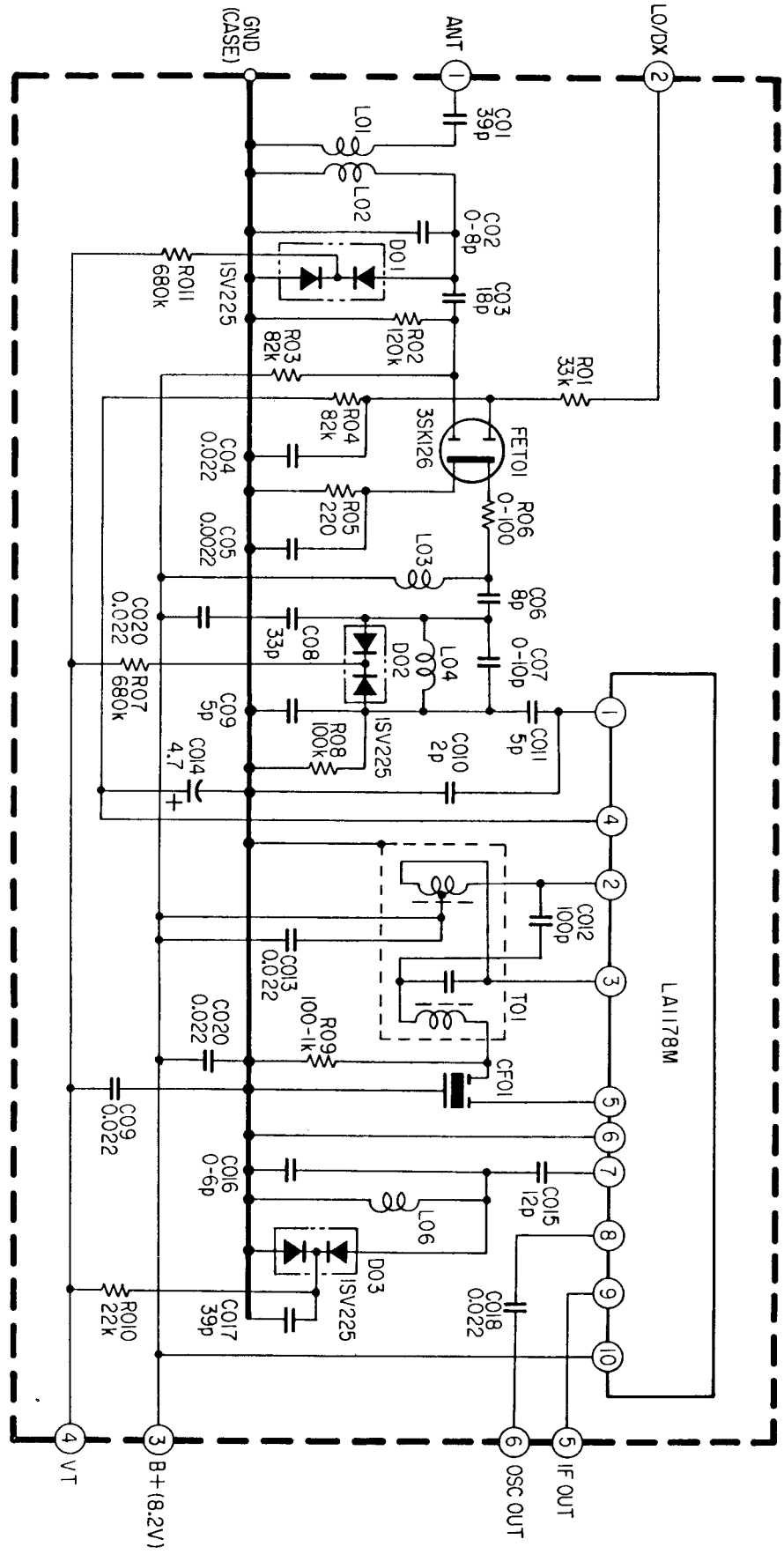
IC501 LA1137



Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B+ Line
- ▭ : adjustment for repair.
- Total current is measured with no cassette installed.
- Power voltage is dc 14.4V and fed with regulated dc power supply from battery and accessory terminal.
- Voltage is dc with respect to ground under no-signal (detuned) conditions.
- no mark : FM or TAPE
  ( ) : AM
  〈 〉 : SEEK or FF/REW
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : PB

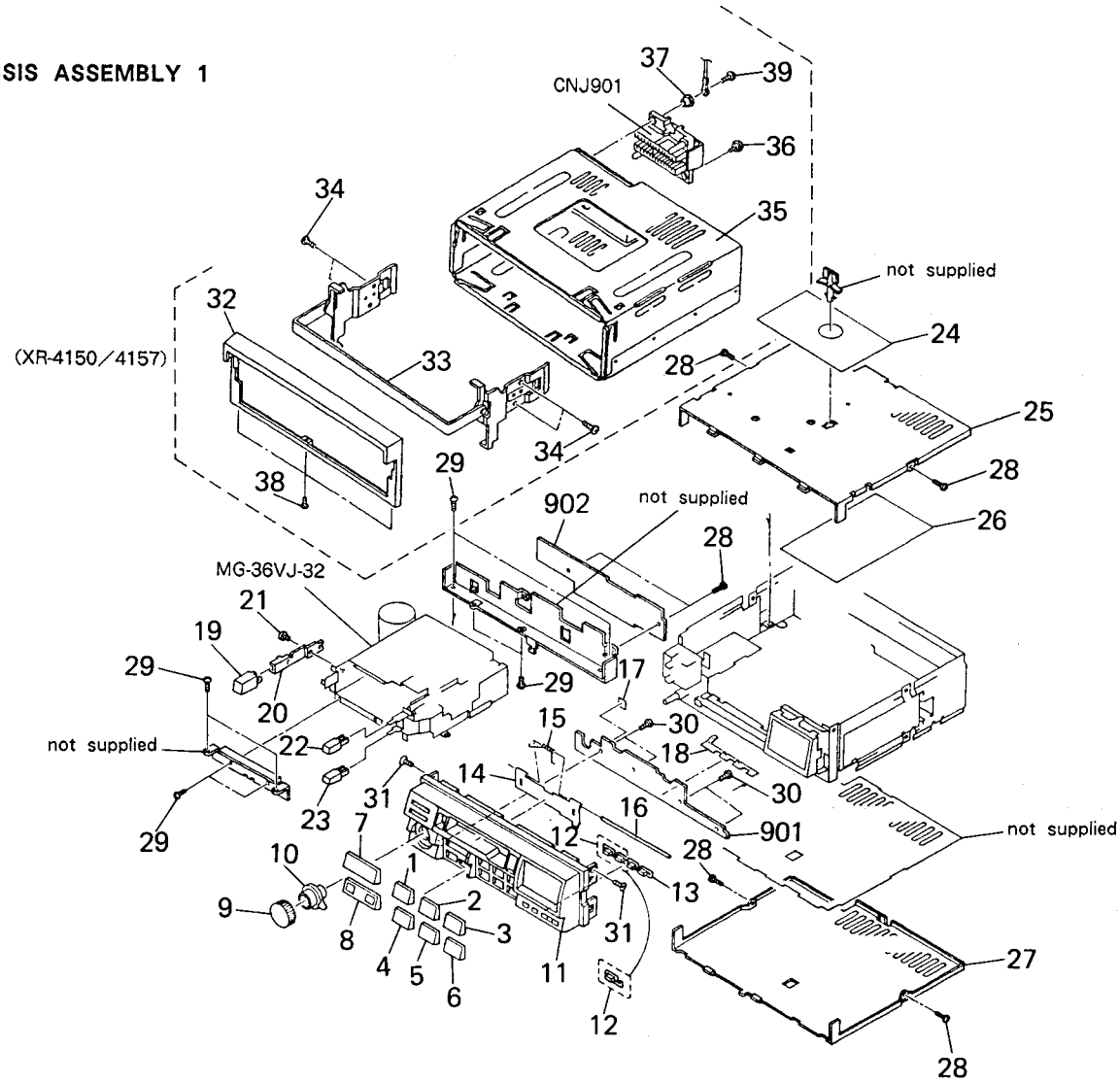
FM/AM FRONT END SCHEMATIC DIAGRAM



- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.

(RED) ... KNOB, BALANCE (WHITE)
↑ Cabinet's Color ↑ Parts' Color

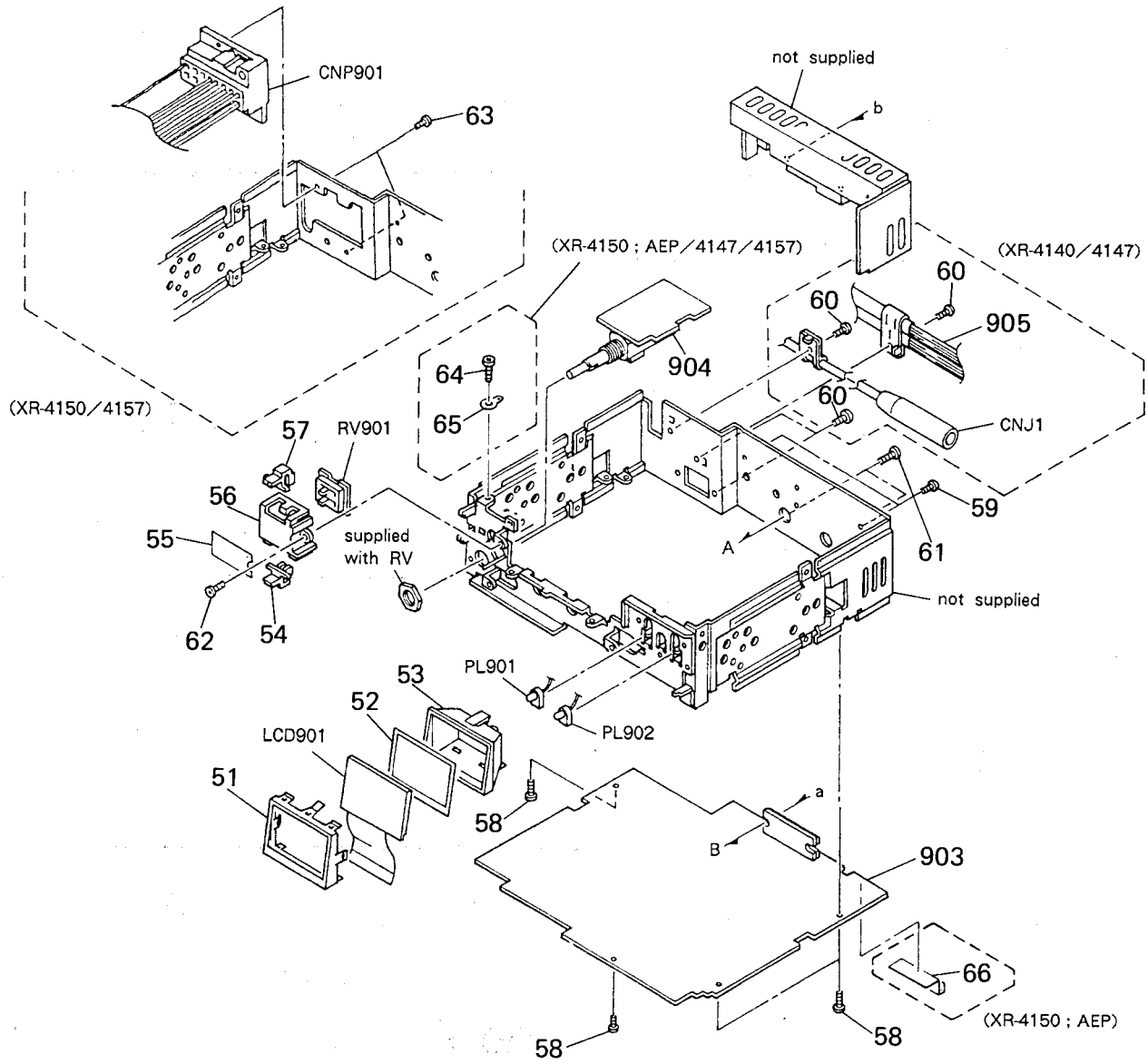
(1) CHASSIS ASSEMBLY 1



No.	Part No.	Description	Remarks
1	3-393-024-01	BUTTON (M;N1P)(1)	
2	3-393-024-11	BUTTON (M;N2P)(2)	
3	3-393-024-21	BUTTON (M;N3P)(3)	
4	3-393-024-31	BUTTON (M;N4P)(4)	
5	3-393-024-41	BUTTON (M;N5P)(5)	
6	3-393-024-51	BUTTON (M;N6P)(6)	
7	3-348-054-01	BUTTON (M;N1W)(FM/AM)	
8	3-351-938-01	BUTTON (M;S1)(SEEK)	
9	A-3235-806-A	KNOB (VOL) ASSY	
10	3-348-079-01	KNOB (FADER)	
11	X-3348-007-1	(4140/4147)...PANEL SUB ASSY, FRONT	
	X-3348-009-1	(4150/4157)...PANEL SUB ASSY, FRONT	
12	3-348-058-01	(4147).....BUTTON (M, D)	
	3-348-058-11	(4140/4150/4157)...BUTTON (M, D)	
13	3-348-057-01	BUTTON (-,+)	
14	A-3235-816-A	(4147).....LID ASSY, CASSETTE	
	A-3235-817-A	(4140).....LID ASSY, CASSETTE	
	A-3235-820-A	(4150;E).....LID ASSY, CASSETTE	
	A-3235-821-A	(4157).....LID ASSY, CASSETTE	
	A-3235-823-A	(4150;AEP)...LID ASSY, CASSETTE	
15	3-348-080-01	SPRING, TORSION	
16	3-350-709-01	SHAFT, CASSETTE DOOR	
17	9-911-839-XX	PACKING, KNOB	
18	*3-348-051-01	PLATE (A), SHIELD	
19	3-348-073-01	BUTTON (EJECT)	
20	*3-348-070-01	LEVER (EJECT)	
21	4-885-599-00	SCREW, FITTING, REINFORCEMENT	
22	3-348-072-01	BUTTON (FF)	
23	3-348-071-01	BUTTON (REW)	

No.	Part No.	Description	Remarks
24	*3-348-089-01	(4147;US).....LABEL, MODEL NUMBER	
	*3-348-090-01	(4147;Canadian)...LABEL, MODEL NUMBER	
	*3-348-091-01	(4140).....LABEL, MODEL NUMBER	
	*3-348-092-01	(4157;US).....LABEL, MODEL NUMBER	
	*3-348-093-01	(4157;Canadian)...LABEL, MODEL NUMBER	
	*3-348-094-01	(4150;E).....LABEL, MODEL NUMBER	
	*3-348-095-01	(4150;AEP).....LABEL, MODEL NUMBER	
25	*3-340-622-22	CASE (UPPER)	
26	*3-348-035-11	PLATE, SHIELD	
27	*3-340-623-12	CASE (LOWER)	
28	7-621-770-67	SCREW +BVTT 2.6X6 (S)	
29	7-621-773-86	SCREW +BVTT 2.6X4 (S)	
30	7-685-103-19	SCREW +P 2X5 TYPE2 NON-SLIT	
31	7-621-561-19	+K 2.6X6	
32	3-340-640-21	(4150/4157)...FRAME, ORNAMENTAL	
33	X-3348-012-1	(4150/4157)...HANDLE ASSY	
34	3-329-814-01	(4150/4157)...SCREW(M4X6), SPECIAL PAN(+)	
35	*X-3348-011-1	(4150/4157)...BRACKET ASSY	
36	3-340-614-11	(4150/4157)...SCREW (JACK), STEP	
37	3-340-673-11	(4150/4157)...COLLAR (JACK)	
38	7-627-553-38	(4150/4157)...SCREW, PRECISION +P 2X3	
39	7-682-548-04	(4150/4157)...SCREW +B 3X8	
901	*1-632-269-11	PC BOARD, CONTROL	
902	*A-3270-708-A	MOUNTED PCB, MUTE, EQ	
CNJ901	1-575-328-11	(4150;E/4157)...CORD (WITH CONNECTOR) (SOCKET)	
CNJ901	1-575-328-21	(4150;AEP).....CORD (WITH CONNECTOR) (SOCKET)	

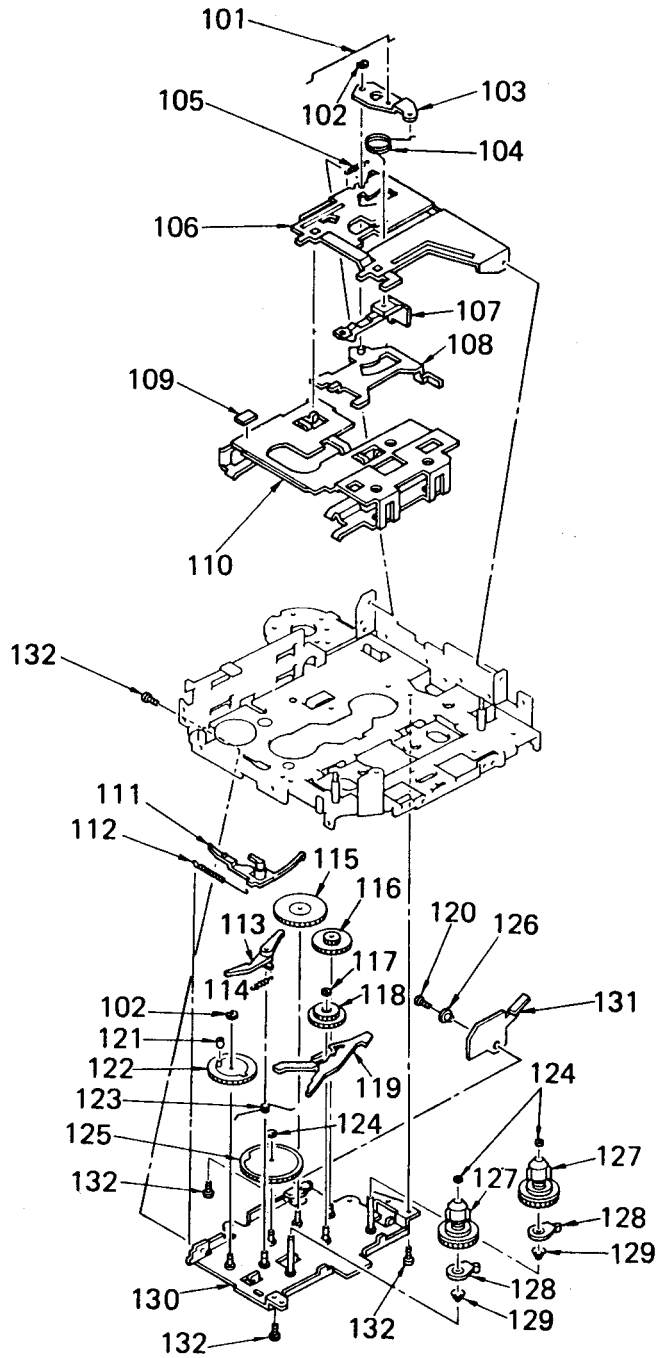
(2) CHASSIS ASSEMBLY 2



No.	Part No.	Description	Remarks
51	*3-348-018-01	HOLDER (LCD)	
52	3-348-003-01	(4140/4147/4150;E/4157)..ILLUMINATOR(LCD)	
	3-348-003-11	(4150;AEP).....ILLUMINATOR(LCD)	
53	*3-348-023-01	COVER (LAMP)	
54	3-348-048-01	KNOB (BASS)	
55	*3-348-050-01	SHEET	
56	*3-348-052-01	HOLDER (B/T)	
57	3-348-049-01	KNOB (TRE)	
58	7-621-770-67	SCREW (+PTT 2.6X8), GROUND POINT	
59	7-685-133-19	SCREW +P 2.6X6 TYPE2 SLIT	
60	7-621-770-67	(4140/4147)...SCREW +BVTT 2.6X6 (S)	
61	7-685-646-79	SCREW +P 3X8 TYPE2 NON-SLIT	
62	7-621-772-18	SCREW +B 2X4	
63	7-682-547-04	(4150/4157)...SCREW +P 3X6	
64	7-621-255-35	(4150;AEP/4147/4157)...SCREW +BVTT 2X5(S)	
65	7-623-505-01	(4150;AEP/4147/4157)...LUG, 2	
66	*3-357-811-01	(4150;AEP)...PLATE, GROUND	

No.	Part No.	Description	Remarks
903	*A-3216-995-A	(4147).....MOUNTED PCB, MAIN	
	*A-3216-996-A	(4140).....MOUNTED PCB, MAIN	
	*A-3216-997-A	(4150;AEP)...MOUNTED PCB, MAIN	
	*A-3216-998-A	(4157).....MOUNTED PCB, MAIN	
	*A-3216-999-A	(4150;E).....MOUNTED PCB, MAIN	
904	*1-632-271-11	PC BOARD, VOL	
905	*1-575-330-11	(4140/4147)...CORD, SPEAKER	
CNJ1	1-575-329-11	(4140/4147)...CORD (WITH CONNECTOR)(ANT)	
CNP901	1-575-327-11	(4150/4157)...CORD (WITH CONNECTOR)(PLUG)	
LCD901	1-808-450-11	DISPLAY PANEL, LIQUID CRYSTAL	
PL901	1-518-661-11	(4150;AEP).....LAMP, PILOT	
PL901	1-518-661-21	(4140/4147/4150;E/4157)...LAMP, PILOT	
PL902	1-518-661-11	(4150;AEP).....LAMP, PILOT	
PL902	1-518-661-21	(4140/4147/4150;E/4157)...LAMP, PILOT	
RV901	1-238-874-11	RES, VAR, SLIDE 50K/50K (WITH PC BOARD)	

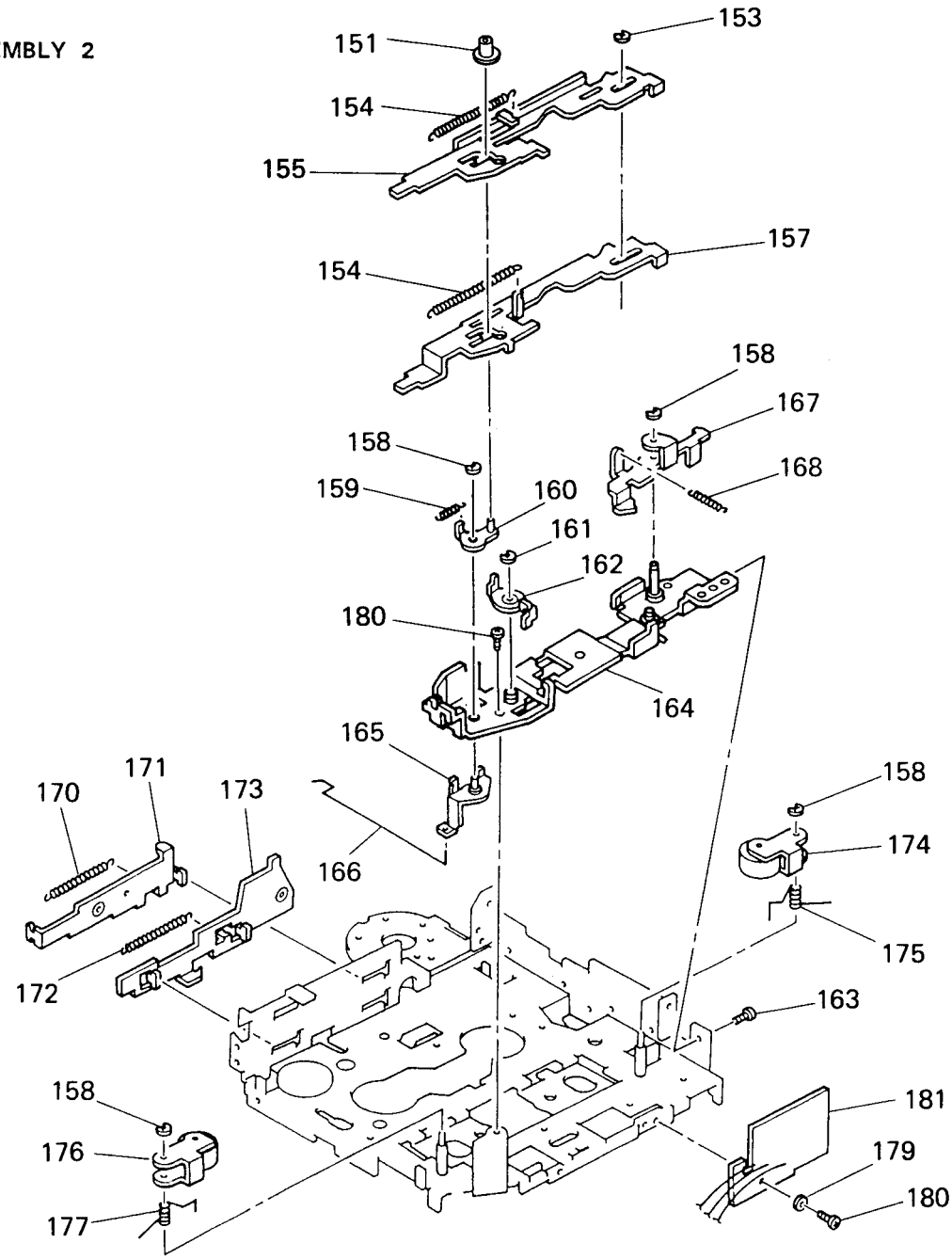
(3) MD ASSEMBLY 1



No.	Part No.	Description	Remarks
101	3-392-969-01	LINK, RETURN	
102	7-624-104-04	STOP RING 2.0, TYPE -E	
103	*3-392-932-01	PLATE, CENTER	
104	3-392-961-01	SPRING (B)	
105	3-392-953-01	SPRING	
106	*3-392-973-01	HANGER, CASSETTE	
107	3-392-972-01	HOOKER, TAPE	
108	*3-392-921-01	LOCK ASSY, EJECT CAM	
109	*3-392-968-01	CUSHION, C.H	
110	*3-392-977-01	HOLDER, CASSETTE	
111	3-392-985-02	RATCHET	
112	3-392-959-01	SPRING	
113	3-392-989-02	ARM, GEAR LOCK	
114	3-392-949-02	SPRING	
115	3-392-937-01	GEAR (B)	
116	3-392-936-01	GEAR (A)	

No.	Part No.	Description	Remar
117	3-570-615-00	POLY-WASHER (DIA.1.2)	
118	3-392-915-01	GEAR, IDLE	
119	3-392-986-01	ARM, SENSOR	
120	4-908-792-31	SCREW (B2) (M2X4), TAPPING	
121	3-392-944-01	COLLAR (CELECTER GEAR)	
122	3-392-987-01	GEAR, SELECTOR	
123	3-392-960-01	SPRING	
124	3-676-387-00	POLY-SLIDER (DIA.1.6)	
125	3-392-990-01	GEAR, DETECTION	
126	3-392-946-01	COLLAR, SWITCH ARM	
127	3-392-910-01	SPINDLE ASSY, REEL	
128	3-392-940-01	CAM, DETECTION	
129	3-392-964-01	SPRING, TENSION	
130	*3-392-976-01	BASE ASSY, REEL	
131	*3-392-982-01	ARM, SWITCH	
132	*4-908-792-11	SCREW (B2X3), TAPPING, P1	

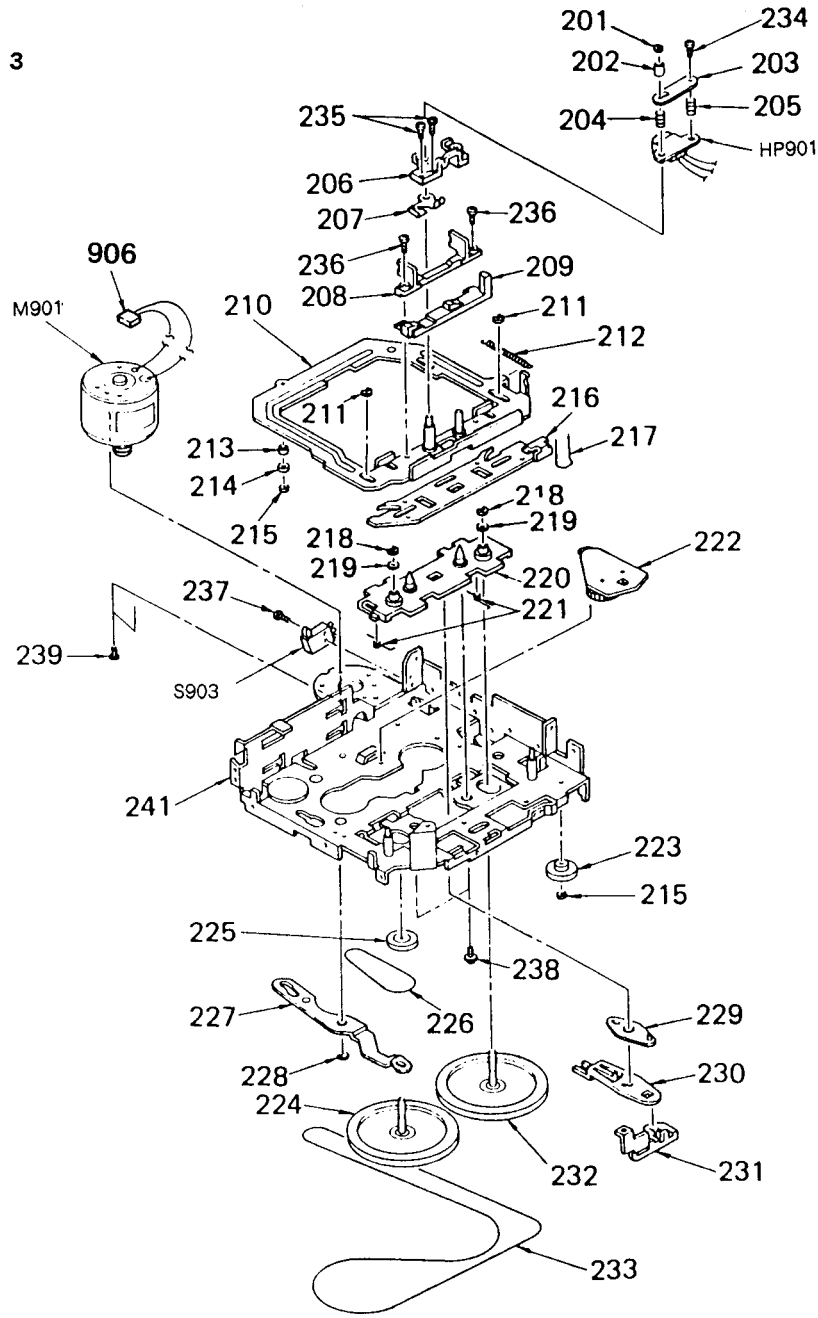
(4) MD ASSEMBLY 2



No.	Part No.	Description	Remarks
151	3-392-994-01	ROLLER, PROGRAM	
153	7-624-104-04	STOP RING 2.0, TYPE -E	
154	3-392-948-01	SPRING	
155	*3-392-991-01	LEVER (Z), FF	
157	*3-392-992-01	LEVER (Z), REW	
158	7-624-102-04	STOP RING 1.5, TYPE -E	
159	3-392-954-01	SPRING	
160	*3-392-924-01	ARM ASSY, PROGRAM	
161	7-624-105-04	STOP RING 2.3, TYPE -E	
162	*3-392-933-01	LEVER (B), CHANGE	
163	7-621-555-10	SCREW +K 2X3	
164	*3-392-993-01	BRACKET ASSY, LEVER	
165	*3-392-920-01	LEVER (A) ASSY, CHANGE	
166	3-392-966-01	LINK, SELECTOR	

No.	Part No.	Description	Remarks
167	*3-392-935-01	ARM, LOCK	
168	3-392-917-01	SPRING	
170	3-392-950-01	SPRING	
171	*3-392-978-01	LEVER, EJECT	
172	3-392-951-01	SPRING	
173	*3-392-929-01	CAM ASSY, EJECT	
174	*3-392-928-01	ARM (F) ASSY, PINCH	
175	3-392-957-01	SPRING (F)	
176	*3-392-927-01	ARM (R) ASSY, PINCH	
177	3-392-958-01	SPRING (R)	
179	7-623-205-22	SW 2, TYPE 2	
180	7-621-255-25	SCREW +PTT 2X4 (S)	
181	3-392-970-01	CHASSIS, SWITCH	

(5) MD ASSEMBLY 3



No.	Part No.	Description	Remarks
201	3-676-387-00	POLY-SLIDER (DIA.1.6)	
202	3-392-943-01	ROLLER, FF	
203	*3-392-930-01	RETAINER, SPRING	
204	3-392-956-01	SPRING (A)	
205	3-392-955-01	SPRING (A)	
206	3-392-988-01	ARM, ADJUSTOR	
207	3-392-931-01	SEAM, ADJUSTOR	
208	3-392-984-01	GUIDE, TAPE	
209	3-392-971-01	LINK, ADJUSTOR	
210	*3-392-975-02	PLATE ASSY, HEAD	
211	7-624-105-04	STOP RING 2.3, TYPE -E	
212	3-392-952-01	SPRING	
213	3-392-942-01	ROLLER (B), H.P	
214	3-392-945-01	ROLLER (A), H.P	
215	3-570-615-00	POLY-WASHER (DIA.1.2)	
216	*3-392-919-01	ARM ASSY, F,R SELECTION	
217	3-392-962-01	SPRING	
218	3-590-768-00	RING (A), E	
219	3-701-437-11	POLY-SLIDER (A)	
220	3-392-914-01	BRACKET ASSY, CM	
221	3-392-963-01	SPRING (R)	
222	3-392-916-01	ARM ASSY, TU GEAR	

No.	Part No.	Description	Remarks
223	3-392-941-01	PULLEY (A), IDLE	
224	3-392-995-02	FLYWHEEL ASSY (R)	
225	3-392-938-01	GEAR, PULLY	
226	3-392-965-01	BELT (B), SUB	
227	*3-392-979-01	LEVER, REVERSE	
228	7-624-104-04	STOP RING 2.0, TYPE -E	
229	*3-392-925-01	ARM (A) ASSY, F.R	
230	*3-392-939-01	ARM, FF	
231	*3-392-934-01	ARM (B), F.R	
232	3-392-926-02	FLYWHEEL ASSY	
233	3-392-967-01	BELT, MAIN	
234	7-627-553-48	SCREW, PRECISION +P 2X4	
235	3-392-909-01	SCREW, AZIMUTH ADJUSTMENT	
236	7-627-553-88	SCREW, PRECISION +P 2X7	
237	3-318-203-11	SCREW (B1.7X6), TAPPING	
238	3-392-918-01	SCREW, EJECT HOOK	
239	7-627-554-07	PRECISION SCREW +P 2X2.2 TYPE3	
241	*3-392-974-01	CHASSIS ASSY, MAIN	
906	*3-392-901-01	CONNECTOR ASSY (2P)	
HP901	1-543-717-11	HEAD, MAGNETIC (PLAYBACK)	
M901	3-392-908-02	MOTOR ASSY	
S903	1-554-790-11	SWITCH, POWER (TAPE/RADIO)	

SECTION 6
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "★" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- If there are two or more same circuits in a set such as a stereophonic machine, only typical circuit parts may be indicated and capacitors and resistors in other same circuits may be omitted.

CAPACITORS:
MF: μF, PF: μμF.

RESISTORS
- All resistors are in ohms.
- F: nonflammable

COILS
- MMH: mH, UH: μH

SEMICONDUCTORS
In each case, U: μ, for example:
UA...: μA..., UPA...: μPA...,
UPC...: μPC, UPD...: μPD...

Ref.No.	Part No.	Description
901	*1-632-269-11	PC BOARD, CONTROL
902	*A-3270-708-A	MOUNTED PCB, MUTE, EQ
903	*A-3216-995-A	(4147).....MOUNTED PCB, MAIN
	*A-3216-996-A	(4140).....MOUNTED PCB, MAIN
	*A-3216-997-A	(4150;AEP)...MOUNTED PCB, MAIN
	*A-3216-998-A	(4157).....MOUNTED PCB, MAIN
	*A-3216-999-A	(4150;E).....MOUNTED PCB, MAIN
904	*1-632-271-11	PC BOARD, VOL
905	*1-575-330-11	(4140/4147)...CORD, SPEAKER
906	*3-392-901-01	CONNECTOR ASSY (2P)
BT701	1-528-225-31	(4150/4157)...BATTERY, LITHIUM
C1	1-163-161-00	CERAMIC CHIP 15PF 5% 50V
C2	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C3	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C4	1-124-589-11	ELECT 47MF 20% 10V
C5	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C6	1-163-809-11	CERAMIC CHIP 0.047MF 10% 25V
C7	1-124-438-00	ELECT 1MF 20% 50V
C8	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C9	1-124-465-00	ELECT 0.47MF 20% 50V
C10	1-163-169-00	CERAMIC CHIP 33PF 5% 50V
C11	1-126-094-11	ELECT 4.7MF 20% 25V
C12	1-124-256-00	(4140/4147/4157) ...ELECT 1.5MF 20% 50V
C12	1-131-587-11	(4150)...TANTALUM 0.68MF 10% 35V
C13	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C14	1-124-229-00	ELECT 33MF 20% 10V
C15	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C16	1-163-213-00	CERAMIC CHIP 0.0022MF 10% 50V
C17	1-124-234-00	ELECT 22MF 20% 16V
C18	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C19	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C20	1-124-589-11	ELECT 47MF 20% 10V
C21	1-163-053-00	CERAMIC CHIP 0.0033MF 10% 50V
C22	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C23	1-163-209-00	CERAMIC CHIP 0.0015MF 10% 50V
C24	1-126-094-11	ELECT 4.7MF 20% 25V
C27	1-163-062-00	(4140/4150) ...CERAMIC CHIP 0.018MF 10% 50V
C27	1-163-063-00	(4147/4157) ...CERAMIC CHIP 0.022MF 10% 50V
C28	1-163-062-00	(4140/4150) ...CERAMIC CHIP 0.018MF 10% 50V
C28	1-163-063-00	(4147/4157) ...CERAMIC CHIP 0.022MF 10% 50V

Ref.No.	Part No.	Description
C29	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C30	1-124-464-11	ELECT 0.22MF 20% 50V
C31	1-124-438-00	ELECT 1MF 20% 50V
C32	1-124-229-00	ELECT 33MF 20% 10V
C33	1-124-438-00	ELECT 1MF 20% 50V
C34	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C50	1-131-342-00	(4150)...TANTALUM 0.15MF 10% 35V
C99	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C101	1-126-162-11	ELECT 3.3MF 20% 35V
C102	1-126-162-11	ELECT 3.3MF 20% 35V
C103	1-126-094-11	ELECT 4.7MF 20% 25V
C104	1-163-157-00	CERAMIC CHIP 10PF 5% 50V
C105	1-126-094-11	ELECT 4.7MF 20% 25V
C121	1-126-162-11	ELECT 3.3MF 20% 35V
C122	1-163-199-00	CERAMIC CHIP 560PF 10% 50V
C123	1-124-963-11	ELECT 33MF 20% 10V
C124	1-130-773-11	FILM 0.27MF 10% 63V
C125	1-130-773-11	FILM 0.27MF 10% 63V
C201	1-126-162-11	ELECT 3.3MF 20% 35V
C202	1-126-162-11	ELECT 3.3MF 20% 35V
C203	1-126-094-11	ELECT 4.7MF 20% 25V
C204	1-163-157-00	CERAMIC CHIP 10PF 5% 50V
C205	1-126-094-11	ELECT 4.7MF 20% 25V
C221	1-126-162-11	ELECT 3.3MF 20% 35V
C222	1-163-199-00	CERAMIC CHIP 560PF 10% 50V
C223	1-124-963-11	ELECT 33MF 20% 10V
C224	1-130-773-11	FILM 0.27MF 10% 63V
C225	1-130-773-11	FILM 0.27MF 10% 63V
C301	1-124-229-00	ELECT 33MF 20% 10V
C321	1-124-589-11	ELECT 47MF 20% 16V
C322	1-124-443-00	ELECT 100MF 20% 10V
C323	1-123-306-00	ELECT 47MF 20% 10V
C326	1-124-893-11	ELECT 2200MF 20% 10V
C352	1-124-229-00	ELECT 33MF 20% 10V
C353	1-124-589-11	ELECT 47MF 20% 10V
C354	1-124-229-00	ELECT 33MF 20% 10V
C356	1-124-556-11	ELECT 2200MF 20% 16V
C357	1-126-101-11	ELECT 100MF 20% 16V
C361	1-161-051-00	CERAMIC 0.01MF 10% 25V
C365	1-163-181-00	CERAMIC CHIP 100PF 5% 50V
C370	1-163-059-00	(4150;AEP)..CERAMIC CHIP 0.01MF 10% 50V
C371	1-163-181-00	(4150;AEP)..CERAMIC CHIP 100PF 5% 50V
C372	1-163-059-00	(4150;AEP)..CERAMIC CHIP 0.01MF 10% 50V
C373	1-163-063-00	(4150;AEP) ...CERAMIC CHIP 0.022MF 10% 50V
C374	1-163-059-00	(4150;AEP)..CERAMIC CHIP 0.01MF 10% 50V

Ref.No.	Part No.	Description
C375	1-126-567-11	ELECT 4.7MF 20% 25V
C376	1-163-059-00	(4150;AEP)..CERAMIC CHIP 0.01MF 10% 50V
C377	1-163-059-00	(4150;AEP)..CERAMIC CHIP 0.01MF 10% 50V
C378	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C401	1-126-160-11	ELECT 1MF 20% 50V
C402	1-163-205-00	CERAMIC CHIP 0.001MF 10% 50V
C403	1-126-154-11	ELECT 47MF 20% 6.3V
C404	1-130-485-00	MYLAR 0.015MF 5% 50V
C405	1-163-185-00	CERAMIC CHIP 150PF 5% 50V
C421	1-126-160-11	ELECT 1MF 20% 50V
C422	1-163-205-00	CERAMIC CHIP 0.001MF 10% 50V
C423	1-126-154-11	ELECT 47MF 20% 6.3V
C424	1-130-485-00	MYLAR 0.015MF 5% 50V
C425	1-163-185-00	CERAMIC CHIP 150PF 5% 50V
C451	1-124-589-11	ELECT 47MF 20% 10V
C452	1-124-589-11	ELECT 47MF 20% 10V
C453	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C454	1-124-119-00	ELECT 330MF 20% 16V
C455	1-126-096-11	ELECT 10MF 20% 25V
C456	1-124-589-11	ELECT 47MF 20% 16V
C457	1-126-157-11	ELECT 10MF 20% 16V
C501	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C502	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C503	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C504	1-124-446-11	ELECT 47MF 20% 10V
C505	1-124-257-00	ELECT 2.2MF 20% 50V
C506	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C507	1-124-229-00	ELECT 33MF 20% 10V
C508	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V
C509	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C510	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C511	1-124-446-11	ELECT 47MF 20% 10V
C512	1-124-438-00	ELECT 1MF 20% 50V
C513	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C514	1-126-159-11	ELECT 0.47MF 20% 50V
C515	1-163-075-00	CERAMIC CHIP 0.047MF 10% 25V
C516	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C517	1-124-465-00	ELECT 0.47MF 20% 50V
C518	1-126-162-11	ELECT 3.3MF 20% 35V
C519	1-126-094-11	ELECT 4.7MF 20% 25V
C520	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C521	1-136-736-00	FILM 430PF 5% 50V
C522	1-161-055-00	CERAMIC 0.022MF 10% 25V
C523	1-161-020-11	CERAMIC 0.039MF 10% 25V
C525	1-124-463-00	ELECT 0.1MF 20% 50V
C526	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C528	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C529	1-163-158-00	(4140/4147/4150;E/4157) ...CERAMIC CHIP 11PF 5% 50V
C529	1-163-160-00	(4150;AEP)..CERAMIC CHIP 13PF 5% 50V
C530	1-163-153-00	(4147/4157) ...CERAMIC CHIP 6PF 0.25PF 50V
C530	1-163-156-00	(4140/4150) ...CERAMIC CHIP 9PF 0.25PF 50V
C531	1-163-153-00	(4147/4157) ...CERAMIC CHIP 6PF 0.25PF 50V
C531	1-163-156-00	(4140/4150) ...CERAMIC CHIP 9PF 0.25PF 50V

Ref.No.	Part No.	Description
C535	1-163-173-00	(4147/4150;AEP/4157) ...CERAMIC CHIP 47PF 5% 50V
C536	1-163-141-00	CERAMIC CHIP 0.001MF 5% 50V
C601	1-130-479-00	MYLAR 0.0047MF 5% 50V
C602	1-130-486-00	MYLAR 0.018MF 5% 50V
C603	1-130-489-00	MYLAR 0.033MF 5% 50V
C604	1-124-250-00	ELECT 0.15MF 20% 50V
C605	1-163-205-00	(4147/4150;AEP/4157) ...CERAMIC CHIP 0.001MF 5% 50V
C606	1-163-205-00	(4147/4150;AEP/4157) ...CERAMIC CHIP 0.001MF 5% 50V
C621	1-130-479-00	MYLAR 0.0047MF 5% 50V
C622	1-130-486-00	MYLAR 0.018MF 5% 50V
C623	1-130-489-00	MYLAR 0.033MF 5% 50V
C624	1-124-250-00	ELECT 0.15MF 20% 50V
C625	1-163-205-00	(4147/4150;AEP/4157) ...CERAMIC CHIP 0.001MF 5% 50V
C626	1-163-205-00	(4147/4150;AEP/4157) ...CERAMIC CHIP 0.001MF 5% 50V
C701	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C702	1-163-165-00	CERAMIC CHIP 22PF 5% 50V
C703	1-163-164-00	CERAMIC CHIP 20PF 5% 50V
C704	1-124-463-00	ELECT 0.1MF 20% 50V
C705	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C706	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C707	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C708	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C709	1-126-094-11	ELECT 4.7MF 20% 25V
C710	1-126-094-11	ELECT 4.7MF 20% 25V
C711	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C712	1-124-589-11	ELECT 47MF 20% 10V
C713	1-163-063-00	CERAMIC CHIP 0.022MF 10% 50V
C714	1-163-059-00	CERAMIC CHIP 0.01MF 10% 50V
C715	1-124-225-00	ELECT 100MF 20% 6.3V
C716	1-124-135-00	ELECT 470MF 20% 6.3V
C901	1-161-055-00	CAP, CERAMIC 0.022MF X
C902	1-161-494-00	(4147/4150;AEP/4157) ...CERAMIC 0.022MF 25V
CF1	1-567-107-11	(4150).....FILTER, CERAMIC
CF1	1-567-415-11	(4140/4147/4157)....FILTER, CERAMIC
CF501	1-567-309-11	FILTER, CERAMIC
CF502	1-527-981-00	FILTER, CERAMIC
CNJ1	1-575-329-11	(4140/4147)..CORD(WITH CONNECTOR)(ANT)
CNJ901	1-575-328-11	(4150;E/4157)...CORD (WITH CONNECTOR) (SOCKET)
CNJ901	1-575-328-21	(4150;AEP).....CORD (WITH CONNECTOR) (SOCKET)
CNP1	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P
CNP2	*1-506-985-11	PIN, CONNECTOR (PC BOARD) 3P
CNP3	*1-506-496-11	PIN, CONNECTOR 3P
CNP4	*1-506-986-11	PIN, CONNECTOR (PC BOARD) 4P
CNP5	*1-506-987-11	PIN, CONNECTOR (PC BOARD) 5P
CNP6	*1-566-006-11	PIN, CONNECTOR (PC BOARD) 9P
CNP7	*1-506-757-11	PIN, CONNECTOR 10P
CNP8	*1-564-242-00	PIN, CONNECTOR 5P
CNP9	*1-564-517-11	PLUG, CONNECTOR 2P
CNP10	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P
CNP11	*1-506-984-11	PIN, CONNECTOR (PC BOARD) 2P
CNP12	*1-566-003-11	PIN, CONNECTOR (PC BOARD) 6P

Ref.No.	Part No.	Description
CNP13	*1-566-003-11	PIN, CONNECTOR (PC BOARD) 6P
CNP14	*1-564-509-11	(4150/4157)...PLUG, CONNECTOR 6P
CNP15	1-564-320-00	(4140/4147)...PIN, CONNECTOR 2P
CNP16	*1-506-496-11	(4140/4147)...PIN, CONNECTOR 3P
CNP851	*1-569-216-11	(4140/4147)...CONNECTOR
CNP901	1-575-327-11	(4150/4157)...CORD (WITH CONNECTOR)
CNS701	*1-563-373-11	SOCKET, CONNECTOR 25P
D1	8-719-911-19	DIODE 1SS119
D2	8-719-911-19	DIODE 1SS119
D3	8-719-911-19	DIODE 1SS119
D4	8-719-911-19	DIODE 1SS119
D5	8-719-911-19	DIODE 1SS119
D301	8-719-110-08	DIODE RD8.2ES-B2
D321	8-719-911-19	DIODE 1SS119
D322	8-719-911-19	DIODE 1SS119
D351	8-719-911-19	DIODE 1SS119
D352	8-719-110-13	DIODE RD9.1ES-B2
D353	8-719-110-17	DIODE RD10ES-B2
D354	8-719-911-19	DIODE 1SS119
D355	8-719-911-19	DIODE 1SS119
D356	8-719-911-19	DIODE 1SS119
D357	8-719-109-89	DIODE RD5.6ES-B2
D358	8-719-945-59	DIODE DSA3A4
D359	8-719-200-82	DIODE 11ES2
D360	8-719-200-82	(4150/4157)...DIODE 11ES2
D361	8-719-200-82	DIODE 11ES2
D401	8-719-911-19	DIODE 1SS119
D421	8-719-911-19	DIODE 1SS119
D451	8-719-110-13	DIODE RD9.1ES-B2
D452	8-719-911-19	DIODE 1SS119
D453	8-719-911-19	DIODE 1SS119
D454	8-719-110-13	DIODE RD9.1ES-B2
D455	8-719-911-19	DIODE 1SS119
D456	8-719-911-19	DIODE 1SS119
D457	8-719-911-19	DIODE 1SS119
D458	8-719-911-19	DIODE 1SS119
D501	8-719-110-46	DIODE RD16ES-B2
D502	8-719-110-46	DIODE RD16ES-B2
D504	8-719-903-25	DIODE SVC321SP-C3
D505	8-719-903-25	DIODE SVC321SP-C3
D506	8-719-903-25	DIODE SVC321SP-C3
D507	8-719-911-19	DIODE 1SS119
D508	8-719-911-19	DIODE 1SS119
D509	8-719-911-19	DIODE 1SS119
D701	8-719-911-19	DIODE 1SS119
D702	8-719-911-19	DIODE 1SS119
D703	8-719-911-19	DIODE 1SS119
D704	8-719-911-19	DIODE 1SS119
D705	8-719-911-19	DIODE 1SS119
D706	8-719-911-19	DIODE 1SS119
D707	8-719-911-19	DIODE 1SS119
D708	8-719-911-19	DIODE 1SS119
D709	8-719-911-19	DIODE 1SS119
D710	8-719-911-19	(4140/4147)...DIODE 1SS119
D711	8-719-911-19	(4140/4150)...DIODE 1SS119
D712	8-719-911-19	(4140/4147/4150;E/4157)...DIODE 1SS119
D713	8-719-911-19	(4140/4147/4150;E/4157)...DIODE 1SS119
D714	8-719-109-93	DIODE RD6.2ES-B2
D715	8-719-200-82	DIODE 11ES2
D717	8-719-108-26	(4150/4157)...DIODE 1SS101
D718A	8-719-911-19	(4150/4157)...DIODE 1SS119
D718B	8-719-109-93	DIODE RD6.2ES-B2
D801	8-719-951-39	DIODE CL-50Y-CD
D802	8-719-951-39	DIODE CL-50Y-CD
D803	8-719-951-39	DIODE CL-50Y-CD
D804	8-719-951-39	DIODE CL-50Y-CD
D805	8-719-951-39	DIODE CL-50Y-CD
D806	8-719-951-39	DIODE CL-50Y-CD
D807	8-719-951-39	DIODE CL-50Y-CD
D808	8-719-951-39	DIODE CL-50Y-CD
D809	8-719-951-39	DIODE CL-50Y-CD
D810	8-719-951-39	DIODE CL-50Y-CD
D811	8-719-951-39	DIODE CL-50Y-CD
D812	8-719-951-39	DIODE CL-50Y-CD
D813	8-719-951-39	DIODE CL-50Y-CD
D814	8-719-951-39	(4147)...DIODE CL-50Y-CD
D815	8-719-951-39	DIODE CL-50Y-CD
D816	8-719-951-39	DIODE CL-50Y-CD
D817	1-807-927-11	(4140/4147/4150;E/4157)...DIODE AA3822K
D817	8-719-946-41	(4150;AEP)...DIODE BG3822K-104
D818	1-807-927-11	(4140/4147/4150;E/4157)...DIODE AA3822K
D818	8-719-946-41	(4150;AEP)...DIODE BG3822K-104
D819	1-807-927-11	(4140/4147/4150;E/4157)...DIODE AA3822K
D819	8-719-946-41	(4150;AEP)...DIODE BG3822K-104
FE1	1-465-043-11	FRONT END, FM
HP901	1-543-717-11	HEAD, MAGNETIC (PLAYBACK)
IC1	8-759-820-06	IC LA1145
IC2	8-759-801-94	IC LA2113
IC3	8-759-803-51	IC LA3433
IC301	8-759-945-58	IC RC4558P
IC302	8-759-230-61	IC TA8205AH
IC401	8-759-105-60	IC UPC1228HA
IC501	8-759-822-24	IC LA1137
IC701	8-759-147-14	(4147).....IC UPD1708AG-826-00
IC701	8-759-145-91	(4140/4150/4157)...IC UPD1708AG-821-00
JR2	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR3	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR4	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR5	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR6	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR8	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR9	1-216-296-00	METAL GLAZE 0 5% 1/8W
JR10	1-216-296-00	METAL GLAZE 0 5% 1/8W
L1	1-410-316-11	INDUCTOR 1UH
L2	1-410-312-11	INDUCTOR 0.22UH
L353	1-410-397-21	(4147/4150;AEP/4157) ...FERRITE BEAD INDUCTOR
L354	1-424-331-11	COIL, CHOKE 800UH
L355	1-410-396-41	(4150;AEP)...INDUCTOR 0.47UH
L451	1-408-121-00	INDUCTOR 22UH

Ref.No.	Part No.	Description
L501	1-410-324-11	INDUCTOR 4.7UH
L502	1-410-513-11	INDUCTOR 22UH
L503	1-402-149-11	COIL, MW ANT
L507	1-408-418-00	INDUCTOR 56UH
L508	1-410-513-11	INDUCTOR 22UH
LCD901	1-808-450-11	DISPLAY PANEL, LIQUID CRYSTAL
M901	3-392-908-02	MOTOR ASSY
PL901	1-518-661-11	(4150;AEP).....LAMP, PILOT
PL901	1-518-661-21	(4140/4147/4150;E/4157)...LAMP, PILOT
PL902	1-518-661-11	(4150;AEP).....LAMP, PILOT
PL902	1-518-661-21	(4140/4147/4150;E/4157)...LAMP, PILOT
Q2	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q101	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q102	8-729-104-14	TRANSISTOR 2SD1021
Q201	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q202	8-729-104-14	TRANSISTOR 2SD1021
Q351	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q352	8-729-205-02	TRANSISTOR 2SA1150
Q353	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q354	8-729-807-12	TRANSISTOR 2SD1802
Q357	8-729-102-04	TRANSISTOR 2SD1020-F
Q358	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q359	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q451	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q501	8-729-884-02	TRANSISTOR 2SC2840-D
Q502	8-729-884-02	TRANSISTOR 2SC2840-D
Q503	8-729-105-73	TRANSISTOR 2SK523-L2
Q701	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q702	8-729-119-76	TRANSISTOR 2SA1175-HFE
Q703	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q704	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q705	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q706	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q707	8-729-119-78	TRANSISTOR 2SC2785-HFE
Q708	8-729-100-12	TRANSISTOR 2SC2001-L
R1	1-216-154-00	METAL GLAZE 15 5% 1/8W
R2	1-216-216-00	METAL GLAZE 5.6K 5% 1/8W
R3	1-216-144-00	METAL GLAZE 5.6 5% 1/8W
R4	1-216-037-00	METAL GLAZE 330 5% 1/10W
R5	1-216-232-00	METAL GLAZE 27K 5% 1/8W
R6	1-216-101-00	METAL GLAZE 150K 5% 1/10W
R7	1-216-228-00	METAL GLAZE 18K 5% 1/8W
R8	1-216-226-00	METAL GLAZE 15K 5% 1/8W
R9	1-216-222-00	METAL GLAZE 10K 5% 1/8W
R10	1-216-216-00	METAL GLAZE 5.6K 5% 1/8W
R11	1-216-093-00	METAL GLAZE 68K 5% 1/10W
R12	1-216-224-00	(4140/4147/4157) ...METAL GLAZE 12K 5% 1/8W
R12	1-216-232-00	(4150)...METAL GLAZE 27K 5% 1/8W
R13	1-216-222-00	METAL GLAZE 10K 5% 1/8W
R15	1-216-150-00	METAL GLAZE 10 5% 1/8W
R16	1-216-217-00	METAL GLAZE 6.2K 5% 1/8W
R17	1-216-238-00	METAL GLAZE 47K 5% 1/8W
R18	1-216-216-00	METAL GLAZE 5.6K 5% 1/8W
R19	1-216-150-00	METAL GLAZE 10 5% 1/8W

Ref.No.	Part No.	Description
R20	1-216-103-00	METAL GLAZE 180K 5% 1/10W
R21	1-216-101-00	METAL GLAZE 150K 5% 1/10W
R22	1-216-234-00	METAL GLAZE 33K 5% 1/8W
R28	1-216-231-00	METAL GLAZE 24K 5% 1/8W
R29	1-216-206-00	METAL GLAZE 2.2K 5% 1/8W
R30	1-216-240-00	METAL GLAZE 56K 5% 1/8W
R31	1-216-243-00	METAL GLAZE 75K 5% 1/8W
R32	1-216-228-00	METAL GLAZE 18K 5% 1/8W
R33	1-216-228-00	METAL GLAZE 18K 5% 1/8W
R34	1-216-210-00	METAL GLAZE 3.3K 5% 1/8W
R35	1-216-228-00	METAL GLAZE 18K 5% 1/8W
R36	1-216-210-00	METAL GLAZE 3.3K 5% 1/8W
R37	1-216-215-00	METAL GLAZE 5.1K 5% 1/8W
R38	1-216-150-00	METAL GLAZE 10 5% 1/8W
R39	1-216-204-00	METAL GLAZE 1.8K 5% 1/8W
R40	1-216-228-00	METAL GLAZE 18K 5% 1/8W
R41	1-216-208-00	METAL GLAZE 2.7K 5% 1/8W
R101	1-216-230-00	METAL GLAZE 22K 5% 1/8W
R102	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W
R103	1-216-234-00	METAL GLAZE 33K 5% 1/8W
R104	1-216-244-00	METAL GLAZE 82K 5% 1/8W
R105	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R106	1-216-224-00	METAL GLAZE 12K 5% 1/8W
R107	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R108	1-216-204-00	METAL GLAZE 1.8K 5% 1/8W
R109	1-216-234-00	METAL GLAZE 33K 5% 1/8W
R110	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R121	1-216-204-00	METAL GLAZE 1.8K 5% 1/8W
R122	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R123	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R124	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R125	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R126	1-216-176-00	METAL GLAZE 120 5% 1/8W
R201	1-216-230-00	METAL GLAZE 22K 5% 1/8W
R202	1-216-214-00	METAL GLAZE 4.7K 5% 1/8W
R203	1-216-234-00	METAL GLAZE 33K 5% 1/8W
R204	1-216-244-00	METAL GLAZE 82K 5% 1/8W
R205	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R206	1-216-224-00	METAL GLAZE 12K 5% 1/8W
R207	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R208	1-216-204-00	METAL GLAZE 1.8K 5% 1/8W
R209	1-216-234-00	METAL GLAZE 33K 5% 1/8W
R210	1-216-246-00	METAL GLAZE 100K 5% 1/8W
R221	1-216-204-00	METAL GLAZE 1.8K 5% 1/8W
R222	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R223	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R224	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R225	1-247-774-00	CARBON MELF 4.3 5% 1/5W
R226	1-216-176-00	METAL GLAZE 120 5% 1/8W
R301	1-216-174-00	METAL GLAZE 100 5% 1/8W
R321	1-216-198-00	METAL GLAZE 1K 5% 1/8W
R322	1-216-236-00	METAL GLAZE 39K 5% 1/8W
R323	1-216-164-00	METAL GLAZE 39 5% 1/8W
R324	1-216-164-00	METAL GLAZE 39 5% 1/8W
R325	1-216-232-00	METAL GLAZE 27K 5% 1/8W
R326	1-216-221-00	METAL GLAZE 9.1K 5% 1/8W
R351	1-216-218-00	METAL GLAZE 6.8K 5% 1/8W

Ref.No.	Part No.	Description			
R352	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R353	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R354	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R357	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R358	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R359	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R360	1-216-228-00	METAL GLAZE	18K	5%	1/8W
R361	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R362	1-216-234-00	METAL GLAZE	33K	5%	1/8W
R363	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W
R364	1-216-226-00	METAL GLAZE	15K	5%	1/8W
R365	1-216-228-00	METAL GLAZE	18K	5%	1/8W
R366	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W
R372	1-249-026-00	(4140/4147/4150;E/4157) ...CARBON MELF	120	5%	1/5W
R372	1-249-405-11	(4150;AEP) ...CARBON MELF	100	5%	1/5W
R373	1-249-026-00	(4140/4147/4150;E/4157) ...CARBON MELF	120	5%	1/5W
R373	1-249-405-11	(4150;AEP) ...CARBON MELF	100	5%	1/5W
R374	1-249-026-00	(4140/4147/4150;E/4157) ...CARBON MELF	120	5%	1/5W
R374	1-249-405-11	(4150;AEP) ...CARBON MELF	100	5%	1/5W
R375	1-249-026-00	(4140/4147/4150;E/4157) ...CARBON MELF	120	5%	1/5W
R375	1-249-405-11	(4150;AEP) ...CARBON MELF	100	5%	1/5W
R401	1-216-177-00	METAL GLAZE	130	5%	1/8W
R402	1-216-254-00	METAL GLAZE	220K	5%	1/8W
R403	1-216-221-00	METAL GLAZE	9.1K	5%	1/8W
R404	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R421	1-216-177-00	METAL GLAZE	130	5%	1/8W
R422	1-216-254-00	METAL GLAZE	220K	5%	1/8W
R423	1-216-221-00	METAL GLAZE	9.1K	5%	1/8W
R424	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R451	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R452	1-249-388-11	CARBON MELF	3.9	5%	1/5W
R453	1-249-388-11	CARBON MELF	3.9	5%	1/5W
R454	1-216-244-00	METAL GLAZE	82K	5%	1/8W
R455	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R456	1-216-228-00	METAL GLAZE	18K	5%	1/8W
R457	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R458	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W
R459	1-216-238-00	METAL GLAZE	47K	5%	1/8W
R460	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R501	1-216-270-00	METAL GLAZE	1M	5%	1/8W
R502	1-216-191-00	METAL GLAZE	510	5%	1/8W
R503	1-216-168-00	METAL GLAZE	56	5%	1/8W
R504	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R505	1-216-218-00	METAL GLAZE	6.8K	5%	1/8W
R506	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R507	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R508	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R509	1-216-170-00	METAL GLAZE	68	5%	1/8W
R510	1-216-214-00	METAL GLAZE	4.7K	5%	1/8W
R511	1-216-246-00	METAL GLAZE	100K	5%	1/8W
R512	1-216-246-00	METAL GLAZE	100K	5%	1/8W

Ref.No.	Part No.	Description			
R513	1-216-234-00	METAL GLAZE	33K	5%	1/8W
R514	1-216-233-00	METAL GLAZE	30K	5%	1/8W
R515	1-216-234-00	METAL GLAZE	33K	5%	1/8W
R601	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R602	1-216-215-00	METAL GLAZE	5.1K	5%	1/8W
R603	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W
R604	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R605	1-216-197-00	METAL GLAZE	910	5%	1/8W
R621	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R622	1-216-215-00	METAL GLAZE	5.1K	5%	1/8W
R623	1-216-203-00	METAL GLAZE	1.6K	5%	1/8W
R624	1-216-230-00	METAL GLAZE	22K	5%	1/8W
R625	1-216-197-00	METAL GLAZE	910	5%	1/8W
R701	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R702	1-216-236-00	METAL GLAZE	39K	5%	1/8W
R704	1-216-216-00	METAL GLAZE	5.6K	5%	1/8W
R705	1-216-234-00	METAL GLAZE	33K	5%	1/8W
R707	1-216-258-00	METAL GLAZE	330K	5%	1/8W
R708	1-216-258-00	METAL GLAZE	330K	5%	1/8W
R709	1-216-258-00	METAL GLAZE	330K	5%	1/8W
R710	1-216-262-00	METAL GLAZE	470K	5%	1/8W
R711	1-216-206-00	METAL GLAZE	2.2K	5%	1/8W
R712	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W
R713	1-216-270-00	METAL GLAZE	1M	5%	1/8W
R714	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R715	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R716	1-216-202-00	METAL GLAZE	1.5K	5%	1/8W
R717	1-216-222-00	METAL GLAZE	10K	5%	1/8W
R718	1-216-190-00	METAL GLAZE	470	5%	1/8W
R720	1-216-150-00	METAL GLAZE	10	5%	1/8W
R721	1-216-210-00	METAL GLAZE	3.3K	5%	1/8W
R722	1-216-188-00	(4150/4157) ...METAL GLAZE	390	5%	1/8W
R723	1-216-188-00	(4150/4157) ...METAL GLAZE	390	5%	1/8W
R801	1-216-185-00	METAL GLAZE	300	5%	1/8W
R802	1-216-186-00	METAL GLAZE	330	5%	1/8W
R803	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R804	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R805	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R806	1-216-198-00	METAL GLAZE	1K	5%	1/8W
R807	1-216-182-00	METAL GLAZE	220	5%	1/8W
R808	1-216-179-00	METAL GLAZE	160	5%	1/8W
R809	1-216-181-00	METAL GLAZE	200	5%	1/8W
R810	1-216-185-00	METAL GLAZE	300	5%	1/8W
R811	1-216-182-00	METAL GLAZE	220	5%	1/8W
R812	1-216-179-00	METAL GLAZE	160	5%	1/8W
R813	1-216-176-00	(4140/4150/4157) ...METAL GLAZE	120	5%	1/8W
RB701	1-232-911-11	COMPOSITION CIRCUIT BLOCK			
RC1	1-235-832-11	ENCAPSULATED COMPONENT(FILTER)			
RV1	1-228-996-00	RES, ADJ, CARBON 47K			
RV2	1-237-744-11	RES, ADJ, CARBON 47K			
RV3	1-228-994-00	RES, ADJ, CARBON 10K			
RV501	1-228-995-00	RES, ADJ, CARBON 22K			
RV601	1-238-254-11	RES, VAR (WITH SWITCH) 80X2/100K/50KX2			
RV901	1-238-874-11	RES, VAR, SLIDE 50K/50K(WITH P C BOARD)			

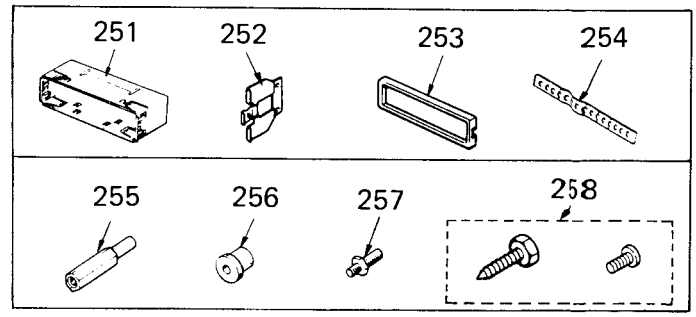
Ref.No.	Part No.	Description
S701	1-553-510-00	(4150;E)...SWITCH, SLIDE (9K/10K)
S801	1-554-813-41	SWITCH, KEY BOARD (FM/AM)
S802	1-554-813-41	SWITCH, KEY BOARD (SEEK -)
S803	1-554-813-41	SWITCH, KEY BOARD (SEEK +)
S804	1-554-813-41	SWITCH, KEY BOARD (1)
S805	1-554-813-41	SWITCH, KEY BOARD (2)
S806	1-554-813-41	SWITCH, KEY BOARD (3)
S807	1-554-813-41	SWITCH, KEY BOARD (4)
S808	1-554-813-41	SWITCH, KEY BOARD (5)
S809	1-554-813-41	SWITCH, KEY BOARD (6)
S810	1-554-813-41	SWITCH, KEY BOARD (MONO)
S811	1-554-813-41	(4147)...SWITCH, KEY BOARD (DSPL)
S812	1-554-813-41	SWITCH, KEY BOARD (MANUAL -)
S813	1-554-813-41	SWITCH, KEY BOARD (MANUAL +)
S901	1-554-814-11	SWITCH, SLIDE (REW/FOR)
S902	1-571-522-11	SWITCH, LEAF (MUTE)
S903	1-554-790-11	SWITCH, POWER (TAPE/RADIO)
T1	1-404-458-00	COIL, DISCRI (PRIMARY)
T501	1-426-386-11	COIL (RF)
T502	1-426-233-11	COIL, MW RF (SEC)
T503	1-404-612-11	AM IFT
T504	1-404-817-11	TRANSFORMER, IF
T505	1-406-300-11	COIL (OSC)
X1	1-567-250-11	OSCILLATOR, CERAMIC (456kHz)
X701	1-567-713-11	VIBRATOR, CRYSTAL (4.5MHz)

ACCESSORY & PACKING MATERIAL

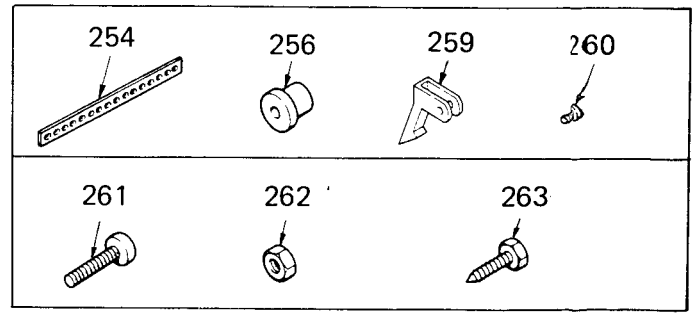
251	3-323-219-01	(4140/4147)...FRAME, FITTING
252	3-339-403-01	(4140/4147)...SPRING
253	3-339-416-01	(4140/4147)...COLLER
254	3-310-655-01	SUPPORT (ND), FITTING
255	3-323-210-01	(4140/4147)...ADJUSTOR, STUD BOLT
256	3-349-410-01	BUSHING
257	3-323-209-01	(4140/4147)...BOLT (4-5), STUD
258	X-3320-524-1	(4140/4147)...SCREW ASSY (A)
259	3-340-687-01	(4150/4157)...KNOB (HANDLE FITTING)
260	7-621-255-20	(4150/4157)...SCREW +P 2X4
261	7-682-583-04	(4150/4157)...SCREW +P 5X40
262	7-684-025-04	(4150/4157)...N 5, TYPE 2
263	3-302-126-01	SCREW, TAPPING (DIA. 5X20)
	1-574-030-21	(4140/4147)...CORD (WITH CONNECTOR)
	3-323-206-01	(4140/4147)...STOPPER (LARGE)
	3-336-617-01	BAG, PROTECTION
	*3-348-087-01	(4140/4147)...CUSHION (TOP)
	*3-348-088-01	(4140/4147)...CUSHION (BOTTOM)
	*3-349-448-01	(4150/4157)...CUSHION (TOP)
	*3-349-489-01	(4140/4147)...CUSHION (BOTTOM)
	*3-357-801-01	(4147).....INDIVIDUAL CARTON
	*3-357-803-01	(4140).....INDIVIDUAL CARTON
	*3-357-805-01	(4150;E).....INDIVIDUAL CARTON
	*3-357-807-01	(4157).....INDIVIDUAL CARTON
	*3-357-810-01	(4150;AEP)...INDIVIDUAL CARTON
	3-751-112-11	(4140)...MANUAL, INSTRUCTION
	3-751-113-11	(4140)...MANUAL, INSTRUCTION
	3-751-112-21	(4147)...MANUAL, INSTRUCTION
	3-751-113-21	(4147)...MANUAL, INSTRUCTION
	3-751-284-11	(4150).....MANUAL, INSTRUCTION
	3-751-285-11	(4150).....MANUAL, INSTRUCTION
	3-751-284-41	(4150;AEP)...MANUAL, INSTRUCTION
	3-751-285-41	(4150;AEP)...MANUAL, INSTRUCTION
	3-751-284-21	(4157)...MANUAL, INSTRUCTION
	3-751-285-21	(4157)...MANUAL, INSTRUCTION

MOUNTING HARDWARE

XR-4140/4147



XR-4150/4157



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